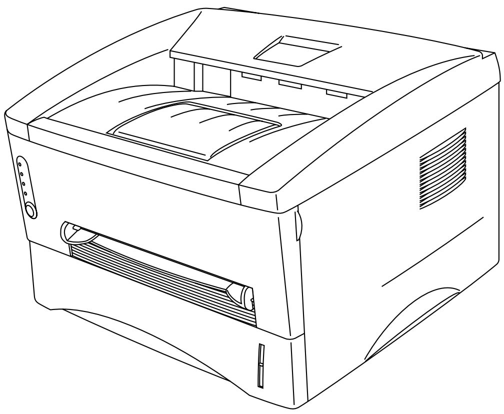
Brother Laser Printer
SERVICE MANUAL

MODEL: HL-1030/1240/1250/1270N



Read this manual thoroughly before maintenance work.

Keep this manual in a convenient place for quick and easy reference at all times.

September, 1999
SM-PRN001

Specifications are subject to change without notice.

PREFACE

This service manual contains basic information required for after-sales service of the laser printer (hereinafter referred to as "this machine" or "the printer"). This information is vital to the service technician to maintain the high printing quality and performance of the printer.

This service manual covers the **HL-1030/1240/1250/1270N** printers.

This manual consists of the following chapters:

CHAPTER 1: GENERAL
Features, specifications, etc.

CHAPTER 2: INSTALLATION AND BASIC OPERATION
Installation conditions, Installation procedures, basic operation of the printer etc.

CHAPTER 3: THEORY OF OPERATION
Basic operation of the mechanical system, the electrical system and the electrical circuits and their timing information.

CHAPTER 4: DISASSEMBLY AND RE-ASSEMBLY
Procedures for disassembling and re-assembling the mechanical system.

CHAPTER 5: MAINTENANCE
Periodical replacements parts, consumable parts, etc.

CHAPTER 6: TROUBLESHOOTING
Reference values and adjustments, troubleshooting image defects, troubleshooting malfunctions, etc.

APPENDICES : Serial No. descriptions, Drum life & page counter, Diameter / circumference of rollers, Connection diagrams, PCB circuit diagrams, etc.

Information in this manual is subject to change due to improvement or redesign of the product. All relevant information in such cases will be supplied in service information bulletins (Technical Information).

A thorough understanding of this printer, based on information in this service manual and service information bulletins, is required for maintaining its print quality performance and for improving the practical ability to find the cause of problems.

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REGULATION

LASER SAFETY (110 - 120V MODEL ONLY)

This printer is certified as a Class I laser product under the US Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation.

Since radiation emitted inside the printer is completely confined within the protective housing and external covers. the laser beam cannot escape form the machine during any phase of user operation.

FDA REGULATIONS (110 - 120V MODEL ONLY)

The US Food and Drug Administration (FDA) has implemented regulations for laser products manufactured on and after August 2, 1976. Compliance is mandatory for products marketed in the United States. One of the following labels on the back of the printer indicates compliance with the FDA regulations and must be attached to laser products marketed in the United States.

The label for Japanese manufactured products

MANUFACTURED: BROTHER INDUSTRIES, LTD. 15-1, Naeshiro-cho, Mizuho-ku, Nagoya 467-8561, Japan. This product complies with FDA radiation performance standards, 21 CFR Subchapter J.	K

The label for Chinese manufactured products

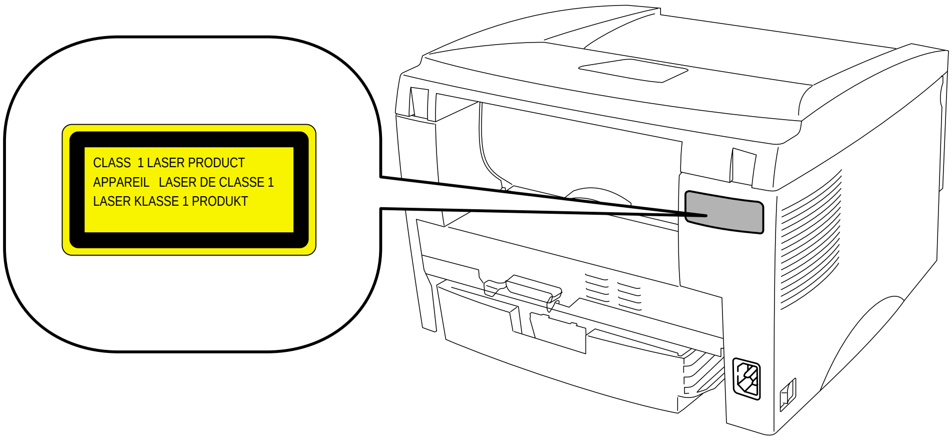
MANUFACTURED: BROTHER Corporation (Asia) Ltd. Shenzen Buji Nan Ling Factory Gold Garden Ind., Nan Ling Village, Buji, Rong Gang, Shenzen, CHINA This product complies with FDA radiation performance standards, 21 CFR Subchapter J.	C

Caution

Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

IEC 825 (220-240V MODEL ONLY)

This printer is a Class I laser product as defined in IEC 825 specifications. The label shown below is attached in countries where required.



This printer has a laser diode which emits invisible laser radiation in the Laser Unit. The Laser Unit should not be opened without disconnecting the two connectors connected with the AC power supply and laser unit. Since the variable resistor in the laser unit is adjusted in accordance with the standards, never touch it.

Caution

Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

For Finland and Sweden

LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

Varoitus! Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

Varning – Om apparaten används på annat sätt än i denna Bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

SAFETY INFORMATION

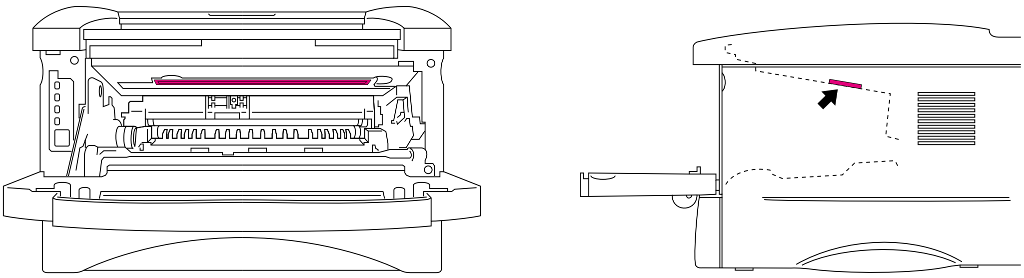
CAUTION FOR LASER PRODUCT (WARNHINWEIS FUR LASER DRUCKER)

CAUTION: When the machine during servicing is operated with the cover open, the regulations of VBG 93 and the performance instructions for VBG 93 are valid.

CAUTION: In case of any trouble with the laser unit, replace the laser unit itself. To prevent direct exposure to the laser beam, do not try to open the enclosure of the laser unit.

ACHTUNG: Im Falle von Störungen der Lasereinheit muß diese ersetzt werden. Das Gehäuse der Lasereinheit darf nicht geöffnet werden, da sonst Laserstrahlen austreten können.

<Location of the laser beam window>



ADDITIONAL INFORMATION

When servicing the optical system of the printer, be careful not to place a screwdriver or other reflective object in the path of the laser beam. Be sure to take off any personal accessories such as watches and rings before working on the printer. A reflected beam, though invisible, can permanently damage the eyes.

Since the beam is invisible, the following caution label is attached on the laser unit.



DEFINITIONS OF WARNINGS, CAUTIONS AND NOTES

The following conventions are used in this service manual:

> ***WARNING***
>
> ***Indicates warnings that must be observed to prevent possible personal injury.***

> ***CAUTION:***
>
> *Indicates cautions that must be observed to service the printer properly or prevent damage to the printer.*

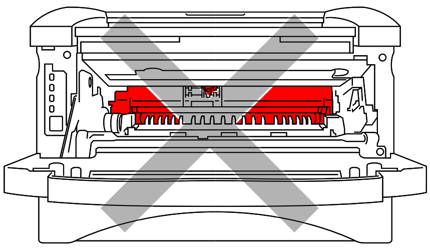
NOTE:

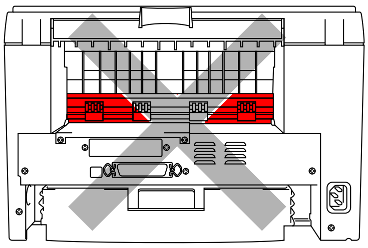
Indicates notes and useful tips to remember when servicing the printer.

**Listed below are the various kinds of “WARNING” messages included in this manual.

> ***WARNING***
>
> ***Always turn off the power switch and unplug the power cord from the power outlet before accessing any parts inside the printer.***

> ***WARNING***
>
> ***Some parts inside the printer are extremely hot immediately after the printer is used. When opening the front cover or rear cover to access any parts inside the printer, never touch the red colored parts shown in the following figures.***





> ***WARNING***
>
> ***If you analyze malfunctions with the power plug inserted into the power outlet, special caution should be exercised even if the power switch is OFF because it is a single pole switch.***

CHAPTER1 GENERAL

1. FEATURES

This printer has the following features;

High Resolution and Fast Print Speed

<HL-1030>
True 600 x 600 dots per inch (dpi) (GDI mode) with microfine toner and up to 10 pages per minute (ppm) print speed (A4 or Letter paper).

<HL-1240>
True 600 x 600 dots per inch (dpi) (GDI mode) and true 300 x 300 dots per inch (dpi) (PCL mode) with microfine toner and up to 12 pages per minute (ppm) print speed (A4 or Letter paper).

<HL-1250/1270N>
True 600 x 600 dots per inch (dpi) and 1200 x 600 dots per inch (dpi) for graphics with microfine toner and up to 12 pages per minutes (ppm) print speed (A4 or Letter paper).

Versatile Paper Handling

The printer loads paper automatically from the paper cassette. The paper cassette can hold A4, letter, B5, Executive A5 and A6 sizes of paper. The manual feed slot allows manual paper loading sheet by sheet so you can use a variety of types and sizes of paper.

Front Operation

Basic operation of the printer can be controlled from the front panel.

Enhanced Printing Performance and User-Friendly Operation for Windows®

The dedicated printer driver for Microsoft® Windows® 95/98, Windows® 3.1 and Windows® NT 4.0 are available on the CD-ROM supplied with your printer. You can easily install them into your Windows® system using our installer program. The driver supports our unique compression mode to enhance printing speed in Windows® applications and allows you to choose various printer settings including toner save mode, custom paper size, sleep mode, gray scale adjustment, resolution, water mark and many layout functions. You can easily setup these print options through the Printer Setup Menu.

Printer Status Monitor with Bi-directional Parallel Interface

The printer driver can monitor the status of your printer using bi-directional parallel communications. IEEE-1284 bi-directional parallel printer cable is recommended.

The printer status monitor program can show the current status of your printer. When printing, the animated dialog box appears on your computer screen to show the current printing process. If an error occurs, a dialog box will appear to let you know what to correct. If you have turned on the interactive Help (Windows 95/98 only) you can get visual guidance on your PC screen on the actions in the event of certain printer errors.

Quick Print Setup

The Quick Print Setup is a convenient utility to allow you to make changes to frequently used driver settings easily without having to open the printer properties selection box every time. It is launched automatically when this printer driver is selected. You can change the settings by clicking on the icon with the right mouse button.

Enhanced Memory Management

The printer provides its own data compression technology in its printer hardware and the supplied printer driver software, which can automatically compress graphic data and font data efficiently into the printer's memory. You can avoid memory errors and print most full page 600 dpi graphic and text data, including large fonts, with the standard printer memory.

USB Interface (for Windows® 98, iMac and Power Macintosh G3 using USB with HL-1240/1250/1270N only)

The printer can be connected using the Universal Serial Bus (USB) interface to a PC or Mac which has a USB interface. Drivers that allow you to use the USB port are provided on the CD-ROM supplied with the printer.

Remote Printer Console Program for DOS (for HL-1240/1250/1270N only)

The utility program, Remote Printer Console (RPC), is available on the CD-ROM supplied with your printer. When you operate your computer in a DOS (Disk Operating System) environment, this program allows you to easily change the default settings of the printer such as fonts, page setup and emulations.

This program also provides a status monitor program, which is a Terminate-and-Stay Resident (TSR) program. It can monitor the printer status while running in the background and report the current status or errors on your computer screen.

Popular Printer Emulation Support (for HL-1240/1250/1270N only)

These printers support the following printer emulation modes;
The HL-1240 supports HP LaserJet IIP.
The HL-1250 supports HP LaserJet 6P (PCL6), Epson FX-850 and IBM Proprinter XL.
The HL-1270N supports HP LaserJet 6P (PCL6), PostScript® Level 2 language emulation (Brother BR-Script Level 2), Epson FX-850 and IBM Proprinter XL.

When you use DOS application software or Windows® version 3.0 or earlier, you can use any of these emulations to operate the HL-1250/1270N printers. The printers also support auto-emulation switching between HP, Brother BR-Script 2 and Epson or HP, BR-Script 2 and IBM. If you want to set the printer emulation, you can do it using the Remote Printer Console Program.

High Resolution Control & Advanced Photoscale Technology (for HL-1250/1270N only)

High Resolution Control (HRC) technology provides clear and crisp printouts. Use this function to get smooth text print quality.

Advanced Photoscale Technology (APT) enables the printer to print graphics in 256 grayscales, producing nearly photographic quality. Use this function when you want to print photographic images.

Environment-Friendly

<Economy Printing Mode>
This feature will cut your printing cost by saving toner. It is useful for obtaining draft copies for proof-reading. You can select from two economy modes, 25% toner saving and 50% toner saving, through the Windows® printer driver supplied with your printer.

<Sleep Mode (Power Save Mode)>
Sleep mode automatically reduces power consumption when the printer is not in use for a certain period of time. The printer consumes less than 5W (HL-1030/1240), 6W (HL-1250) or 12W (HL-1270N) when in sleep mode.

<Low Running Cost>

Since the toner cartridge is separate from the drum unit, you need to replace only the toner cartridge after around 3,000 pages for the standard cartridge and around 6,000 pages for the optional high-capacity cartridge, which is both cost both effective and ecologically friendly.

Bar Code Print (for HL-1250/1270N only)

The printer can print the following 11 types of bar codes;

- Code 39
- Code 128
- Interleaved 2 of 5
- Codabar
- US-PostNet
- ISBN
- UPC-A
- UPC-E
- EAN-8
- EAN-13
- EAN-128

Network Feature (for HL-1270N only)

The Brother printer has built in multi protocol network capability as standard. This allows multiple host computers to share the printer on a 10/100Mbit Ethernet network. Any users can print their jobs as if the printer was directly connected to their computer. Users on Windows® 95/98, Windows NT®, UNIX, Novell, Apple Macintosh, LAN server and OS/2 Warp server computer simultaneously can access this printer. For further information, see the Network User's Guide supplied with the printer.

2. OVERVIEW

<Front View>

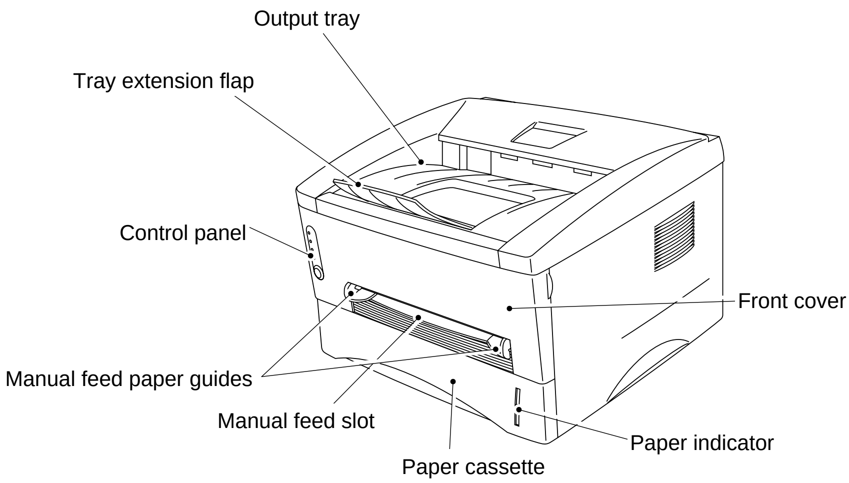


Fig. 1-1

<Rear View>

HL-1030/1240

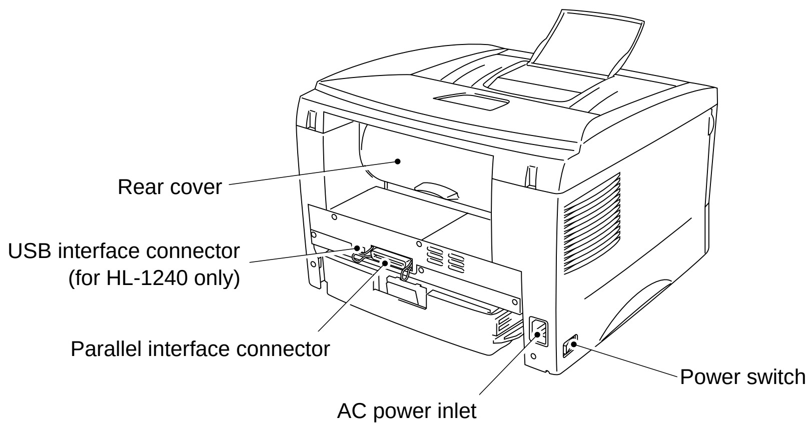


Fig. 1-2

HL-1250/1270N

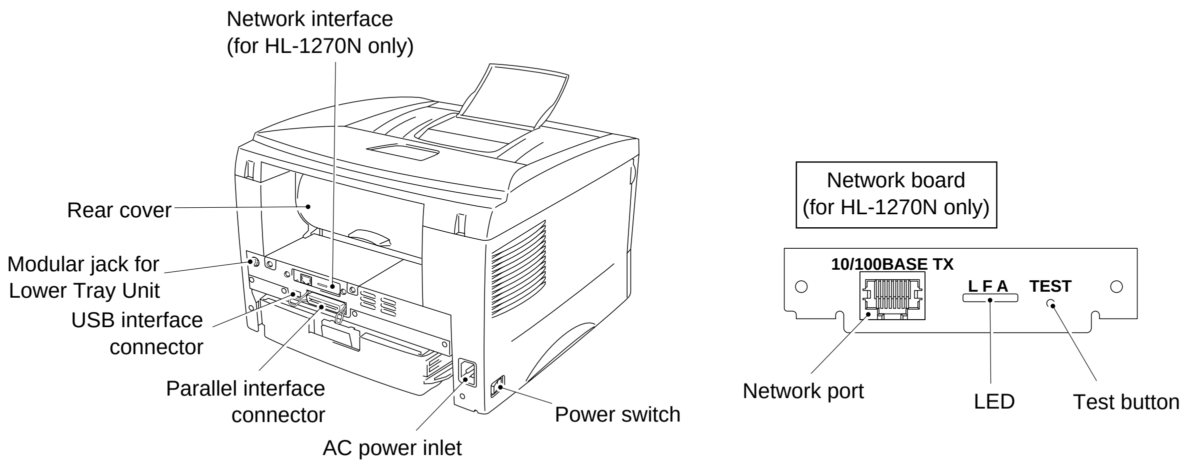


Fig. 1-3

3. SPECIFICATIONS

3.1 Printing

Print method	Electrophotography by semiconductor laser beam scanning	
Laser	Wave length:	780 nm
	Output:	5mW max
Resolution	HL-1030:	600 x 600 dots/inch (GDI)
	HL-1240:	600 x 600 dots/inch (GDI) 300 x 300 dots/inch (under DOS or other operating system)
	HL-1250:	1200(H) x 600(V) dots/inch (for Windows® DIB graphics) 600 x 600 dots/inch (for Windows® and DOS) 300 x 300 dots/inch (under Apple Macintosh using the optional RS-100M)
	HL-1270N:	1200(H) x 600(V) dots/inch (for Windows® DIB graphics) 600 x 600 dots/inch (for Windows® and DOS)
Print quality	Normal printing mode Economy printing mode (up to 25% and 50% toner saving)	
Print speed	HL-1030:	Up to 10 pages/minute
	HL-1240/1250/1270N:	Up to 12 pages/minute*
	(when loading A4 or Letter-size paper from the paper cassette.)	
Warm-up	Max. 45 seconds at 23°C (73.4°F)	
First print	15 seconds (when loading A4 or Letter-size paper from the paper cassette.)	
Print media	Toner cartridge	
	Life expectancy:	3,000 pages/cartridge (Standard cartridge) 6,000 pages/cartridge (High-capacity cartridge)
	(when printing A4 or Letter-size paper at 5% print coverage)	
Developer	Drum unit	
	Life expectancy:	20,000 pages/drum unit

**NOTE:*

Print speed varies depending on the paper size or media type. For details, refer to APPENDIX 3 'PRINT SPEEDS WITH VARIOUS SETTINGS'.

3.2 Functions

CPU	HL-1030/1240:	MB86833 66MHz
	HL-1250/1270N:	MB86832 66MHz

Emulation

HL-1030:	Brother Printing Solution for Windows®
HL-1240:	Brother Printing Solution for Windows® HP LaserJet IIP (PCL level 4)
HL-1250:	Brother Printing Solution for Windows® Automatic emulation selection among HP LaserJet 6P (PCL level 6), EPSON FX-850 or IBM Proprinter XL
HL-1270N:	Brother Printing Solution for Windows® Automatic emulation selection among HP LaserJet 6P (PCL level 6), Brother BR-Script Level 2, EPSON FX-850 or IBM Proprinter XL

Printer driver

<PCL Driver>

- Windows® 3.1/3.11, Windows® 95/98, Windows® NT 4.0 driver, supporting Brother Native Compression mode
- Windows® 3.1/3.11, Windows® 95/98 driver, supporting bi-directional capacity

<PS Driver>

PPD file driver for Windows® 95/98 and Windows NT® 4.0 driver (for HL-1270N only)

<Others>

- iMac, Power Macintosh G3 with USB printer driver (for HL-1240/1250/1270N only)
- Optional Macintosh driver available for System 6.0.7 or higher (for HL-1250 only)

Interface

- Bi-directional parallel
- Universal Serial Bus (USB) (for HL-1240/1250/1270N only)
- Optional RS-422A/RS-232C serial (RS-100M) available (for HL-1250 only)
- 10/100 BaseTX Ethernet network interface (for HL-1270N only)

Memory

HL-1030/1240:	2.0 Mbytes No memory expansion is possible on these models
HL-1250/1270N:	4.0 Mbytes Expandable up to 36 Mbytes by installing an industry standard SIMM*

Control panel: 1 button and 4 LEDs

Diagnostics: Self-diagnostic program

**NOTE:*

The SIMM must have the following specifications;

Type:	*72 pin (Both EDO RAM and Fast page mode DRAM can be used.)*
Access time:	*60 nsec - 80 nsec*
Capacity:	*1, 2, 4, 8, 16, 32 Mbyte* *(Although the 64 Mbyte SIMM can be installed, only 32 Mbyte is effective.)*
Height:	*35.0 mm (1.38 inches) or less*
Output:	*32 bit or 36 bit (independent of parity)*

3.3 Electrical and Mechanical

Power source	U.S.A. and Canada:	AC 110 to 120V, 50 Hz/60 Hz
	Europe and Australia:	AC 220 to 240V, 50 Hz/60 Hz
Power consumption	Printing (peak)*:	940 W or less
	Printing (average):	340 W or less
	Standing by:	80 W or less
	Sleep*:	5 W or less (HL-1030/1240) 6 W or less (HL-1250) 12W or less (HL-1270N)
Noise	Printing:	49 dB A or less
	Standing by:	27 dB A or less
Temperature	Operating:	10 to 32.5°C (50 to 90.5°F)
	Non operating:	0 to 40°C (38 to 104°F)
	Storage:	-20 to 40°C (-4 to 104°F)
Humidity	Operating:	20 to 80% (non condensing)
	Storage:	10 to 85% (non condensing)
Dimensions (W x D x H)	A4 paper cassette installed:	360 x 370 x 235 mm (14.2 x 14.6 x 9.3 inches)
	Legal paper cassette installed:	360 x 430 x 235 mm (14.2 x 16.9 x 9.3 inches)
	A4 lower paper cassette installed: (HL-1250/1270N only)	360 x 370 x 345 mm (14.2 x 14.6 x 13.6 inches)
	Legal lower paper cassette installed: (HL-1250/1270N only)	360 x 430 x 345 mm (14.2 x 16.9 x 13.6 inches)
Weight	Approx. 9.2 kg (20.2 lb.) including the drum unit. Approx. 12.7 kg (27.9 lb.) including the drum unit and Lower Tray unit.	

**NOTE:*

- *The peak figure of power consumption is worked out when the halogen heater lamp is turned ON.*
- *The peak figure of power consumption is worked out excluding inrush current value.*
- *The peak figure of power consumption is a reference value and should be used internally at Brother offices only.*
- *The power consumption figure quoted for sleep mode is when the fan has stopped.*

3.4 Network (for HL-1270N only)

Type / Speed: 10/100 Base TX Ethernet
Auto speed detection

Protocols:
- TCP/IP
  DHCP, BOOTP, RARP, DHCP, NetBIOS over IP
  LPR/LPD, Port9100, Custom Port, POP3/SMTP SMB Print
  TELNET, SNMP, HTTP, TFTP
- Novell IPX.SPX (Bindery/NDS)
- AppleTalk

Management:
- Web Based Management
- BRAdmin32 Windows® based management utility
- TELNET and Netware Command Console
- SNMP/MIB II
- HP JetAdmin / Web JetAdmin compatible

Firmware update: 2MB flash ROM. Use BRAdmin32 when upgrading print server software or BOOTP, TFTP PUT/GET or IPX for Netware.

Supplied software:
- BRAdmin32 management utility (for Windows® 95/98/NT 4.0)
- Port driver for Windows® 95/98/NT 4.0
  LPR port driver (for Windows® 95/98 only)
  NetBIOS port driver
  SMTP port driver

3.5 Paper

3.5.1 Feedable paper

(1) Type & size

Feeding source	Paper type	Paper size
Paper cassette	Normal paper Transparencies	A4, Letter, B5 (ISO), A5, A6, Executive, Legal*
Manual feed slot	Normal paper	A4, Letter, B5 (JIS/ISO), A5, A6, Executive, Legal 70-216 x 116-356 mm (2.75-8.5 x 4.57-14 inches)
	Envelopes	DL, C5, COM10, Monarch, B5 (ISO)
	Organizers	J, K, L sizes of DAY-TIMER
	Labels	A4, Letter
	Transparencies	A4, Letter
	Other sizes	70-216 x 116-356 mm (2.75-8.5 x 4.57-14 inches)
Optional lower paper cassette (HL-1250/1270N only)	Normal paper Transparencies	A4, Letter, B5 (ISO), A5, Executive, Legal*

**NOTE:*

Legal-size paper can be printed with the standard paper cassette or the optional lower cassette for the US and Canada models only.

(2) Other paper specifications

<Paper Cassette>

	Cut sheet
Basis weight	64 to 105 g/m^2 (17 to 28 lb.)
Caliper	0.08 to 0.13 mm (0.003 to 0.005 in.)
Moisture content	4% to 6% by weight

<Manual Feed Slot>

	Cut sheet	Envelope
Basis weight	64 to 158 g/m^2 (17 to 43 lb.)	75 to 90 g/m^2 (20 to 24 lb.) single thickness
Caliper	0.08 to 0.2 mm (0.003 to 0.008 in.)	0.084 to 0.14 mm (0.003 to 0.005 in.) single thickness
Moisture content	4% to 6% by weight	4% to 6% by weight

(3) Recommended paper

- Letter: Xerox 4200 (75 g/m^2)
- A4: Xerox 80 Premier Paper (80 g/m^2)
- Label: Avery laser label or equivalent
- Transparency: 3M CG3300 or equivalent

CAUTION:

When you are choosing print media, be sure to follow the information given below to prevent any paper jams, print quality problems or printer damage;

- *It is recommended to use long-grained paper for the best print quality. If short-grained paper is being used, it might be the cause of paper jams.*
- *Use neutral paper. Do not use acid paper to avoid any damage to the drum unit.*
- *Avoid using coated paper such as vinyl coated paper.*
- *Avoid using preprinted or highly textured paper.*
- *It is recommended to use labels or transparencies which are designed for use in laser printers.*
- *Avoid feeding labels with the carrier sheet exposed, or the printer will be damaged.*
- *Before loading paper with holes such as organizer sheets, be sure to fan the stack well.*
- *Do not use organizer sheets that are stuck together. The glue that is used might caused damaged to the printer.*
- *When printing on the back of pre-printed paper, if the paper is curled, be sure to straighten the paper as much as possible.*
- *Different types of paper should not be loaded at the same time in the paper cassette to avoid any paper jams or misfeeds.*

3.5.2 Paper cassette capacity

(1) Maximum load height

Paper cassette:

<Normal paper> Up to 27mm (1.06 inches) in height
(250 sheets of 80 g/m^2 A4/Letter paper)

<Transparencies> 10 sheets

(2) Paper feed conditions

Type	Weight	Cassette	Manual feed (1 sheet)
Normal paper (cut sheet)	64 to 80 g/m^2	○ (250 sheet)	○
	158 g/m^2	×	○
Special paper (cut sheet)	Labels	×	○
	Envelopes	×	○
	Organizers	×	○

3.5.3 Print delivery

(1) Output tray stacking
capacity: Maximum 150 sheets (80 g/m^2)
face-down only

(2) Straight paper path output at the rear of the printer
capacity: 1 sheet **Thicker paper printing is recommended.
face-up only

NOTE:

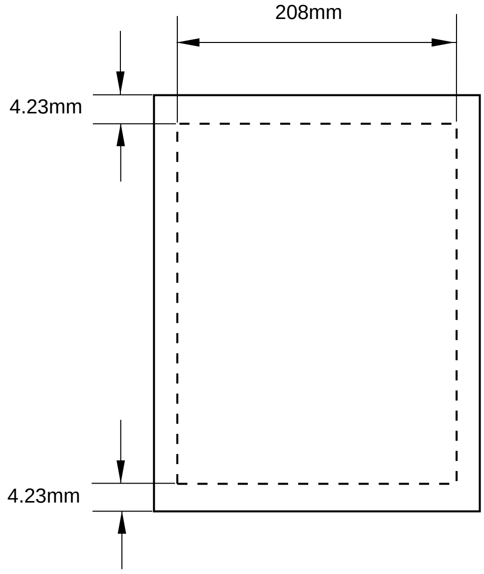
- *When using the straight paper path feed and the rear output method for thicker paper printing, lift up the rear cover at the rear of the printer.*
- *Face-down: Delivery with the printed face of the paper downwards.*
  Face-up: Delivery with the printed face of the paper upwards.

3.6 Printing Area

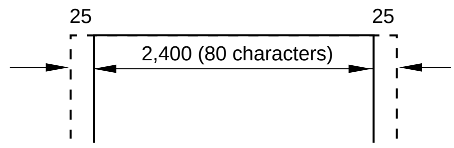
3.6.1 Effective printing area

The effective printing area means the area within which the printing of all the data received without any omissions can be guaranteed.

(1) Supported by the engine

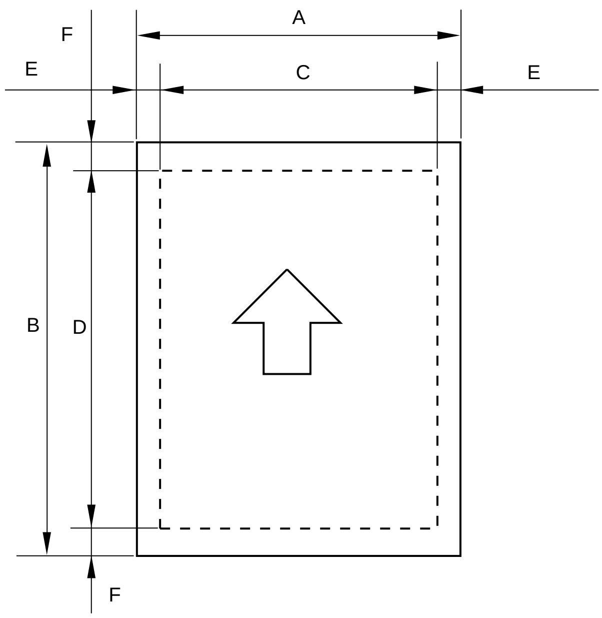


(2) Supported by the emulation



NOTE:
- *The units in the above figure are dot size based on 300 dpi resolution.*
- *25 dots at both sides is for italic characters.*

3.6.2 Print guaranteed area



The values above vary depending on the paper size. For details, see the table on the next page.

The table below shows the print guaranteed areas for each paper size.

Size	A	B	C	D	E	F
A 4	210.0 mm 8.27” (2,480 dots)	297.0 mm 11.69” (3,507 dots)	203.2 mm 8.0” (2,400 dots)	288.5 mm 11.36” (3,407 dots)	3.4 mm 0.13” (40 dots)	4.23 mm 0.17” (50 dots)
Letter	215.9 mm 8.5” (2,550 dots)	279.4 mm 11.0” (3,300 dots)	203.2 mm 8.0” (2,400 dots)	270.9 mm 10.67” (3,200 dots)	6.35 mm 0.25” (75 dots)	↑
Legal	215.9 mm 8.5” (2,550 dots)	355.6 mm 14.0” (4,200 dots)	203.2 mm 8.0” (2,400 dots)	347.1 mm 13.67” (4,100 dots)	↑	↑
B 5 (ISO)	176.0 mm 6.93” (2,078 dots)	250.0 mm 9.84” (2,952 dots)	164.0 mm 6.46” (1,936 dots)	241.5 mm 9.5” (2,852 dots)	↑	↑
Executive	184.15 mm 7.25” (2,175 dots)	266.7 mm 10.5” (3,150 dots)	175.7 mm 6.92” (2,025 dots)	258.2 mm 10.17” (3,050 dots)	6.35 mm 0.25” (75 dots)	↑
A 5	148.5 mm 5.85” (1,754 dots)	210.0 mm 8.27” (2,480 dots)	136.5 mm 5.37” (1,612 dots)	201.5 mm 7.93” (2,380 dots)	6.01 mm 0.24” (71 dots)	↑
A 6	105.0 mm 4.13” (1,240 dots)	148.5 mm 5.85” (1,754 dots)	93.0 mm 3.66” (1,098 dots)	140.0 mm 5.51” (1,654 dots)	↑	↑
Organizer (J size)	69.85 mm 2.75” (825 dots)	116.0 mm 4.57” (1,370 dots)	56.2 mm 2.21” (675 dots)	107.5 mm 4.23” (1,270 dots)	6.35 mm 0.25” (75 dots)	↑
Organizer (K size)	95.25 mm 3.75” (1,125 dots)	171.45 mm 6.75” (2,025 dots)	86.78 mm 3.42” (975 dots)	162.98 mm 6.42” (1,925 dots)	↑	↑
Organizer (L size)	139.7 mm 5.5” (1,650 dots)	215.9 mm 8.5” (2,550 dots)	131.23 mm 5.17” (1,500 dots)	207.43 mm 8.17” (2,450 dots)	↑	↑
COM10	104.78 mm 4.125” (1,237 dots)	241.3 mm 9.5” (2,850 dots)	92.11 mm 3.63” (1,087 dots)	232.8 mm 9.16” (2,750 dots)	↑	↑
MONARCH	98.43 mm 3.875” (1,162 dots)	190.5 mm 7.5” (2,250 dots)	85.7 mm 3.37” (1,012 dots)	182.0 mm 7.16” (2,150 dots)	↑	↑
C 5	162 mm 6.38” (1,913 dots)	229 mm 9.01” (2,704 dots)	150.0 mm 5.9” (1,771 dots)	220.5 mm 8.68” (2,604 dots)	6.01 mm 0.24” (71 dots)	↑
DL	110 mm 4.33” (1,299 dots)	220 mm 8.66” (2,598 dots)	98.0 mm 3.86” (1,157 dots)	211.5 mm 8.33” (2,498 dots)	↑	↑

NOTE:

- *The paper sizes indicated here should conform to the nominal dimensions specified by JIS.*
- *A4 paper must accommodate 80 characters printed in pica pitch (203.2 mm).*
- *The dot size is based on 300 dpi resolution.*
- *Organizer is not supported by any printer emulations (commands).*

CHAPTER2 INSTALLATION AND BASIC OPERATION

1. CONDITIONS REQUIRED FOR INSTALLATION

1.1 Power Supply

- The source voltage must stay within ±10% of the rated voltage shown on the rating plate.
- The power cord, including extensions, should not exceed 5 meters (16.5 feet).
- Do no share the same power circuit with other high-power appliances, particularly an air conditioner, copier or shredder. If it is unavoidable that you must use the printer with these appliances, it is recommended that you use an isolation transformer or a high-frequency noise filter.
- Use a voltage regulator if the power source is not stable.

1.2 Environment

- The printer should be installed near a power outlet, which is easily accessible.
- The room temperature is maintained between 10°C and 32.5°C. The relative humidity is maintained between 20% and 80%.
- The printer should be used in a well ventilation room.
- Place the printer on a flat, horizontal surface.
- Keep the printer clean. Do not place the printer in a dusty place.
- Do not place the printer where the ventilation hole of the printer is blocked. Keep approximately 100 mm (4 inches) between the ventilation hole and the wall.
- Do not place the printer where it is exposed to direct sunlight. Use a blind or a heavy curtain to protect the printer from direct sunlight when the printer is unavoidably set up near a window.
- Do not place the printer near devices that contain magnets or generate magnetic fields.
- Do not subject the printer to strong physical shocks or vibrations.
- Do not expose the printer to open flames or salty or corrosive gasses.
- Do not place objects on top of the printer.
- Do not place the printer near an air conditioner.
- Keep the printer horizontal when carrying.
- Do not cover the slots in the side cover.

1.3 System Requirements for Brother Printer Solution for Windows®

Check the following system requirements to setup and operate the printer using Brother Printing Solution for Windows®:

- IBM PC or compatible with 80486 SX or higher microprocessor
- 10MB of space available on your hard disk for the printer driver and all fonts.
- Microsoft Windows® 3.1/3.11, Windows® 95/98 or Windows® NT 4.0

2. UNPACKING

When unpacking the printer, check to see that all of the following components are included in the carton.

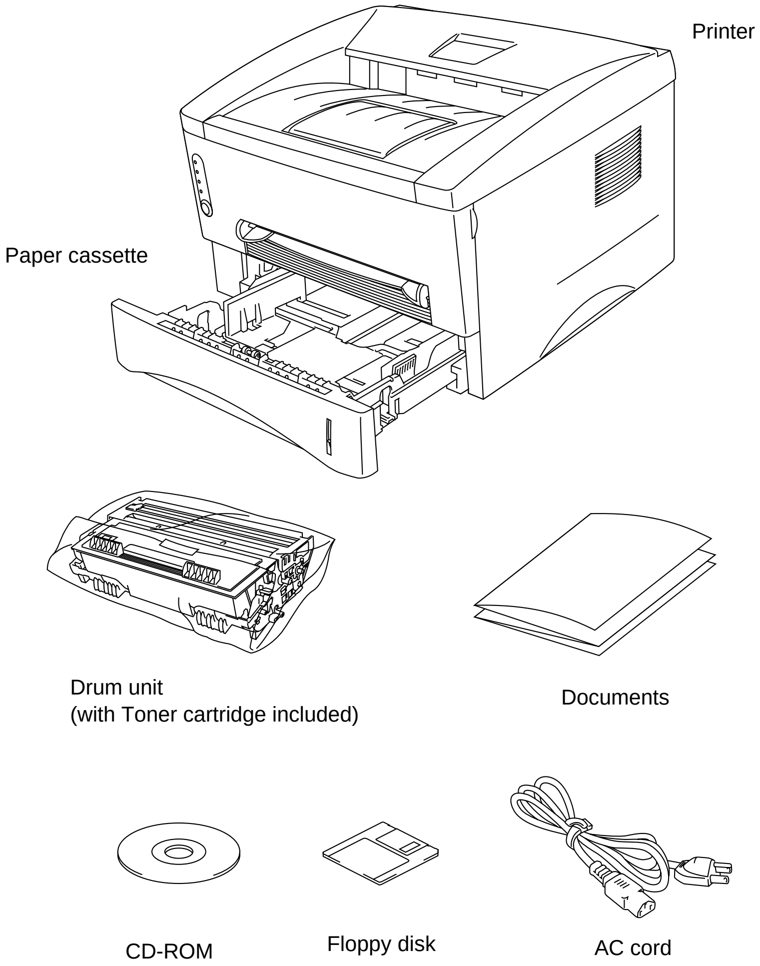


Fig. 2-1

NOTE:

Components may vary depending on the country.

3. INSTALL THE PRINTER

You need to implement hardware setup and driver installation to use the printer.

Firstly, identify the Operating System on your computer. Then, purchase the appropriate interface cable (parallel or USB) for your computer.

The installation programs for the hardware setup and driver installation are contained on the supplied CD-ROM.

If you do not have a CD-ROM drive, you can install the printer driver from the supplied floppy disk. (See Subsection 3.2 'For Windows® Users with No CD-ROM Drive'.)

3.1 For Windows® Users

(1) Turn on your PC power. Close all the applications running on your PC.

(2) Insert the supplied CD-ROM into the CD-ROM drive.

(3) The opening screen will appear automatically in Windows® 95/98/NT4.0.

NOTE:

- *If the opening screen does not appear;*

  Click ***Start*** *and select* ***Run****. Then, type* `D:\START` *in the command line box and click* ***OK****. (If your CD-ROM drive is not D, type the correct drive letter instead of "D".)*

  In Windows® 3.1;

  Click the File menu in the Program Manager screen and select ***Run****. Then, type* `D:\START` *in the command line box and click* ***OK****. (If your CD-ROM drive is not D, type the correct drive letter instead of "D".)*

- *The setup screens shown below are based on the HL-1240 model. They vary depending on the model.*

(4) Select the model of your printer.



Fig. 2-2

(5) Select the language you want, then follow the instructions on the screen.



Fig. 2-3

(6) Click the **Initial Setup** button.



Fig. 2-4

(7) You can view the Initial Setup operations in the video movie.

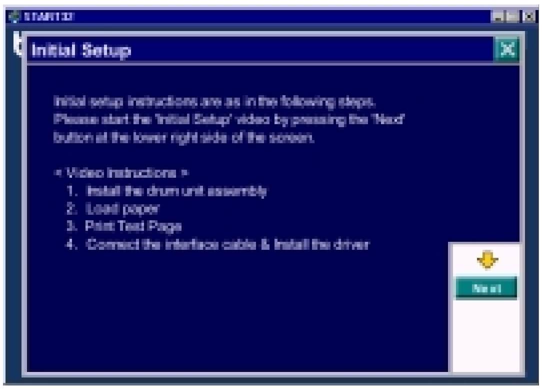


Fig. 2-5

(8) Click the interface cable you are going to use, Parallel or USB.

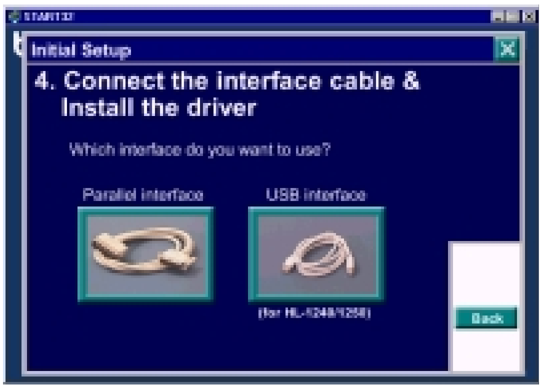


Fig. 2-6

(9) If you click the **NOW** button, you can install the printer driver immediately.

(10) After the printer driver has been installed, the HL-1030, HL-1240, HL-1250 or HL-1270N window will appear. Follow the on-screen messages to complete the installation.

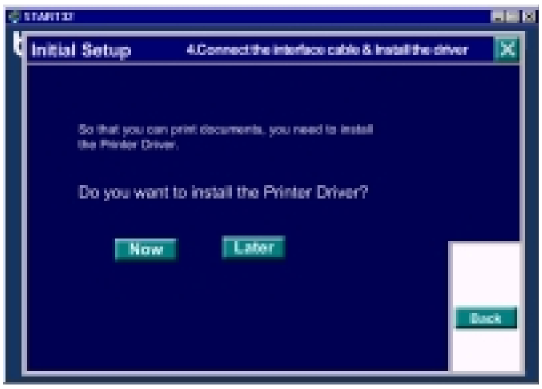


Fig. 2-7

If your printer is connected using a parallel interface cable, the setup is now completed. If you want to connect your printer using a USB interface cable, refer to Subsection 3.3 'Using the USB Interface (For Windows® 98 only)'.

3.2 For Windows® Users with No CD-ROM Drive

If you do not have a CD-ROM drive, setup the printer following the steps below, then install the printer driver from the floppy disk.

3.2.1 Install the drum unit

(1) Open the front cover.

(2) Unpack the drum unit assembly and rock it from side to side 5 or 6 times to distribute the toner evenly inside the cartridge. (Fig. 2-8)

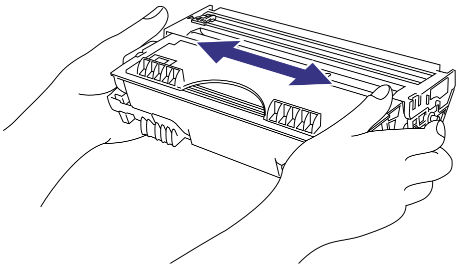


Fig. 2-8

(3) Install the drum unit into the printer until it snaps into place and close the front cover.

3.2.2 Load paper

(1) Pull the paper cassette completely out of the printer.

(2) Slide the paper guides to the paper size you want until they snap into a slot. (Fig. 2-9)

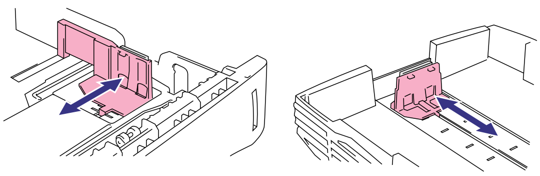


Fig. 2-9

(3) Load paper into the paper cassette. Check that paper is flat placed. (Fig. 2-10) Paper should be loaded up to the lines on the sliding guide.

(4) Re-install the paper cassette into the printer.

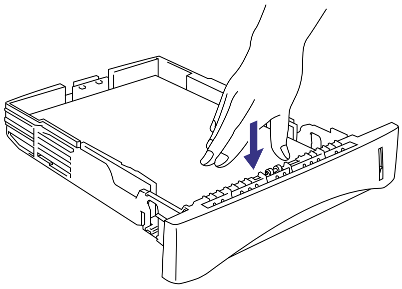


Fig. 2-10

3.2.3 Print a test page

(1) Check that the power switch is off.

(2) Connect the AC power cord to the printer.

(3) Plug the AC power cord into an AC outlet, then turn on the power switch. (Fig. 2-11)

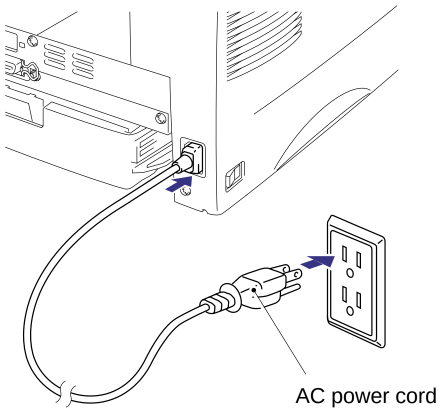


Fig. 2-11

(4) Extend the tray extension flap. After the printer has warmed up the Ready LED changes from blinking to lit. (Fig. 2-12)

(5) Press the control panel button. The printer will print a test page. Check the test page printed correctly.

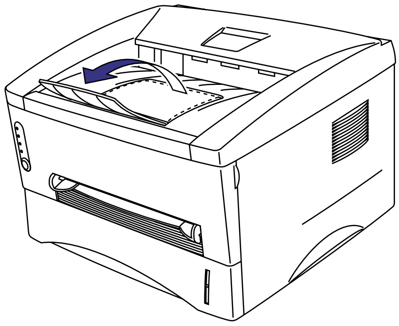


Fig. 2-12

3.2.4 Connect the printer and the computer

(1) Turn off the power switch.

(2) Connect the parallel interface to the computer, then connect it to the printer. (Fig. 2-13)

(3) Use the clips on the printer connector to secure the parallel interface cable.

(4) Turn on the printer power switch.

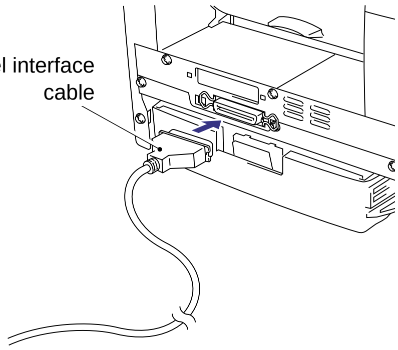


Fig. 2-13

3.2.5 Install the printer driver from floppy disk

(1) Turn on the computer power. If the “Add New Hardware Wizard” window appears, click the **Cancel** button.

(2) Insert the supplied floppy disk into the floppy disk drive.

(3) Install the printer driver using the Setup.exe file.

<u>In Windows® 95/98</u>

i) Click the **Start** button and select **Run**.

ii) Type `A:\SETUP` and click **OK**. (If your floppy disk drive is not A, insert the correct drive letter instead of ‘A’.)

iii) Follow the instructions that appear on the screen.

<u>In Windows® 3.1</u>

i) Click File menu in the Program Manager screen and select **Run**.

ii) Type `A:\SETUP` click **OK**. (If your floppy disk drive is not A, insert the correct drive letter instead of ‘A’.)

iii) Follow the instructions that appear on the screen.

3.3 Using the USB Interface (for Windows® 98 only)

For the HL-1240/1250/1270N printers, the USB interface cable can be connected between the printer and PC. Prepare the printer to use the USB interface following the steps below;

3.3.1 Connect the USB interface cable

(1) Check that the printer power switch is on.

(2) Connect the USB interface cable to the computer, then connect it to the printer. (Fig. 2-14)

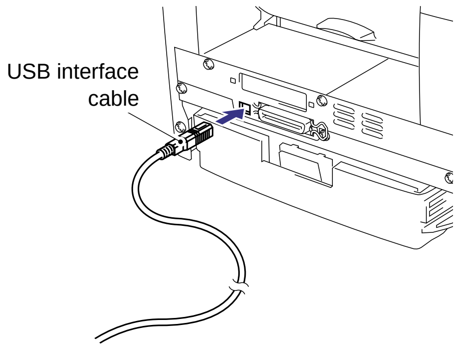


Fig. 2-14

3.3.2 Install the USB driver

(1) The "Add New Hardware Wizard" window will appear. Click the **Next** button.

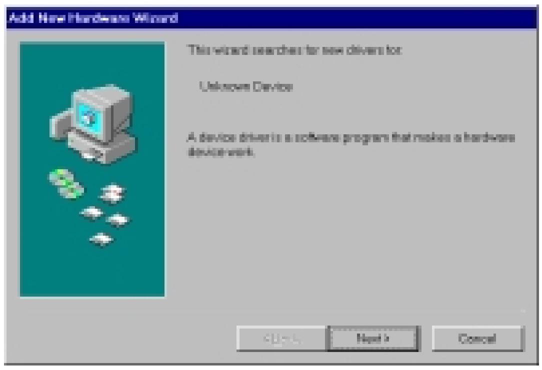


Fig. 2-15

(2) Select "Search for the best driver for your device." Click the **Next** button.

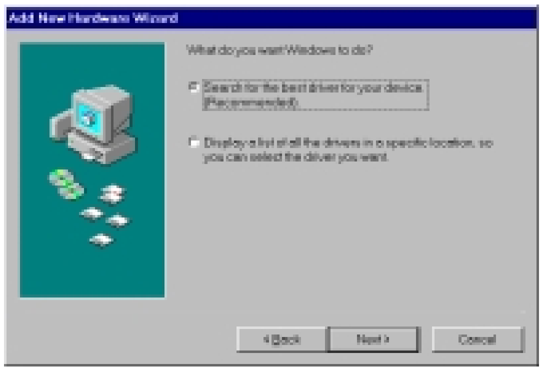


Fig. 2-16

(3) Insert the supplied CD-ROM into the CD-ROM drive and select “CD-ROM drive”. Click the **Next** button.

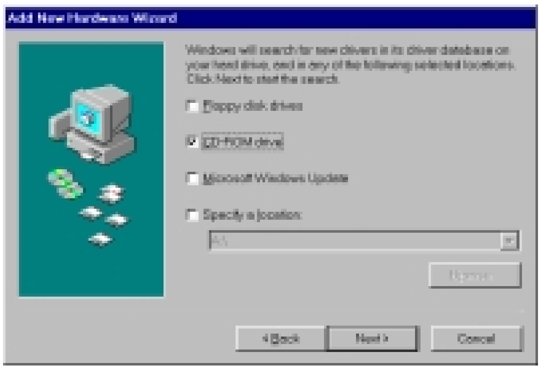


Fig. 2-17

(4) Click the **Next** button, then the USB driver will be installed.

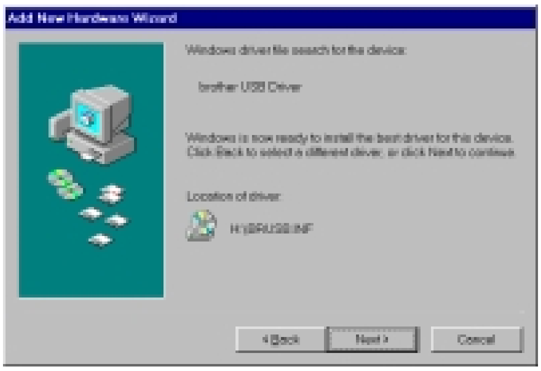


Fig. 2-18

(5) Click the **Finish** button.

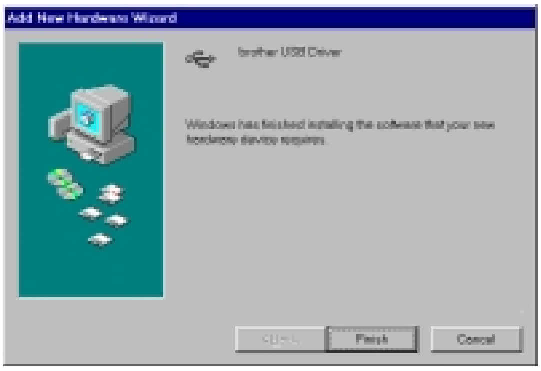


Fig. 2-19

(6) Click the **Yes** button, then your PC will re-start.



Fig. 2-20

3.3.3 Set the PC printer port

Your PC printer port has to be set to "USB port".

(1) Click the **Start** button and select Printers in Settings.

(2) Select your printer model icon in Printers so that the printer icon is highlighted.

(3) Select Properties from the File menu, then click the Details tab.

(4) Select **BRUSB: (USB Printer Port)** in the "Print to the following port" box. (Fig. 2-21)

(5) Click the **OK** button to close the Properties dialog box. The setup is now completed.

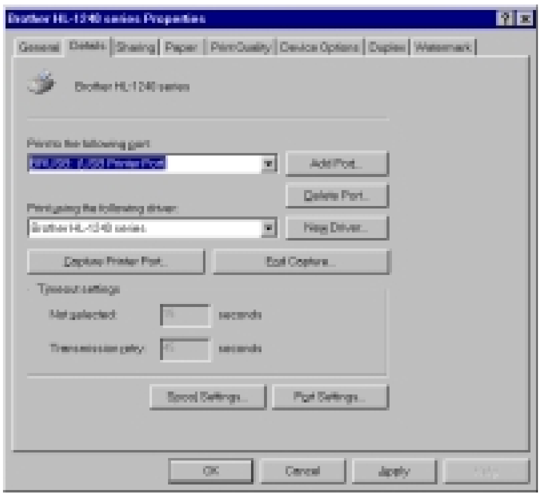


Fig. 2-21

NOTE:

Both the parallel cable and USB interface cable can be connected to the printer at the same time.

3.4 For Macintosh (iMac and Power Macintosh) with USB Users Only

When you use the HL-1240/1250/1270N printer with Macintosh using USB, setup the printer following the Initial Setup instructions on the supplied CD-ROM.

(1) Turn on the computer power, then insert the CD-ROM into the CD-ROM drive. The window shown below will appear automatically.



Fig. 2-22

(2) Click the "Instructional Video" icon in the window above to view the Initial Setup operations in the video movie.

(3) Click the "Printer Driver Installer" icon in the window above to install the printer driver.

4. PAPER HANDLING

The printer provides two types of paper loading method; paper cassette and manual feed slot.

4.1 Load Paper into the Paper Cassette

You can load normal paper and transparencies into the paper cassette. If you load paper into the paper cassette, the printer automatically feeds paper sheet by sheet and ejects the printed page into the output tray.

For the details on cassette loading, refer to Subsection 3.2.2 'Load Paper' in this chapter and Subsection 3.5 'Paper' in CHAPTER 1.

4.2 Load Paper Manually

You can feed envelopes, labels and organizers as well as normal paper and transparencies into the manual feed slot. (For details on feedable paper, see Subsection 3.5 'Paper' in CHAPTER 1.)

When using the manual feed slot, follow the steps below;

(1) Select the manual feed mode in the printer driver, and send the print data to the printer.

NOTE:

A 'NO PAPER' message is shown in the status monitor until a sheet of paper is inserted into the manual feed slot.

(2) Set the width of the manual feed slot paper guides using both hands to the paper width to be used. (Fig. 2-23)

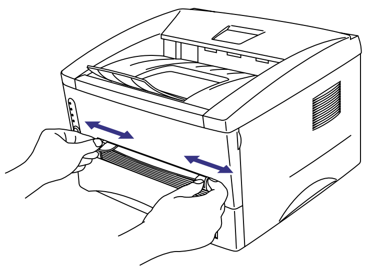


Fig. 2-23

(3) Insert the paper into the manual feed slot with both hands until the front edge of the paper touches the paper feed roller.

(4) Hold the paper in this position until the printer feeds the paper a short distance, then let go of the paper. (Fig. 2-24)

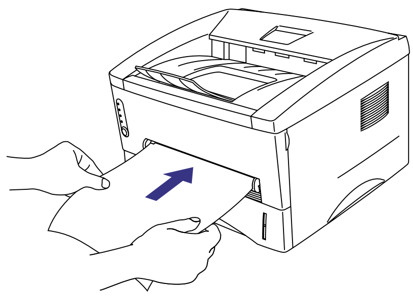


Fig. 2-24

(5) After the printer ejects the printed page, insert the next sheet of paper as in the previous step. The printer will wait until you insert the next sheet of paper. Repeat this as necessary for the number of pages you need to print.

NOTE:

It is recommended to remove printed pages immediately after printing if the output tray extension flap is not extended.

The printer has a **straight paper path** from the manual feed slot to the rear of the printer when the rear cover is lifted up. Use this paper feed and output method when printing on thicker paper or card.

(1) Select the manual feed mode in the printer driver.

(2) Lift up the rear cover at the rear of the printer. (Fig. 2-25)

(3) Send the print data to the printer.

(4) Follow Steps (3) to (4) in the previous page to load paper.

(5) Close the rear cover of the printer.

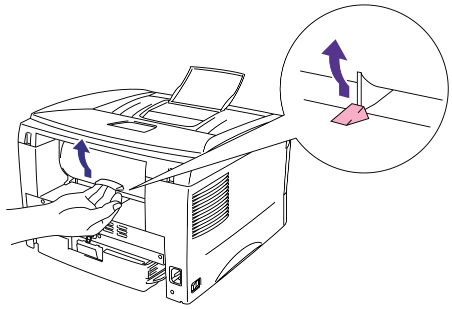


Fig. 2-25

> ***CAUTION:***
> *Remove each sheet immediately after printing. Stacking the sheets may cause curl or media feed jams.*

4.3 Two Side Printing (Manual Duplexing)

The supplied printer driver allows you to do manual duplex printing.

When using the manual duplex function, note the following information;

> ***CAUTION:***
> - *If the paper is too thin, it may cause wrinkling.*
> - *If paper is curled, straighten it and then set it into the paper cassette.*
> - *The paper type should be regular paper. Do not use bond paper.*
> - *When setting paper into the paper cassette, empty the cassette first, then insert the printed paper only, printed side face up. (Do not add the printed paper onto the top of the unprinted paper stack.)*
> - *If the paper is not feeding correctly, the paper might be curled. Remove the paper and straighten it.*

4.3.1 To print on both sides of the paper from the paper cassette

(1) Select the required manual duplex printing mode from the driver.

(2) The printer will automatically print all the even numbered pages on one side of the paper first.

(3) Remove the printed even numbered pages from the output tray.

(4) Re-insert them into the paper cassette, loading the paper with the side to be printed (blank side) face down, and the top edge toward you. Follow the instructions on the computer screen. (Fig. 2-26)

(5) The printer will now automatically print all the odd pages on the reverse side of the paper.

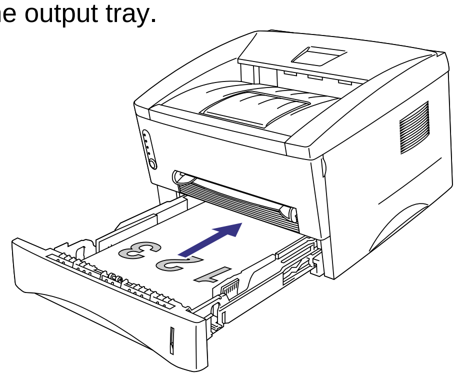


Fig. 2-26

4.3.2 To print on both sides of the paper from the manual feed slot

CAUTION:

- *Before re-inserting the sheets, straighten them, or paper feed errors will occur.*
- *The use of very thin or very thick paper is not recommended.*
- *When the manual duplex function is used, it is possible that paper jams may occur or print quality may not be satisfactory.*

(1) Select the required manual duplex printing mode and manual feed mode from the driver.

(2) Using both hands, insert the paper into the manual feed slot with the side to be printed first facing upwards. Follow the instructions on the computer screen.

(3) Repeat action (2) until you have printed all the even numbered pages.

(4) Remove the printed even numbered pages from the output tray

(5) Re-insert them in order into the manual feed slot, loading the paper with the side to be printed (blank side) face up, and the top edge towards the printer. Follow the instructions on the computer screen. (Fig. 2-27)

(6) Repeat action (5) until you have printed all the odd numbered pages on the reverse side of the paper.

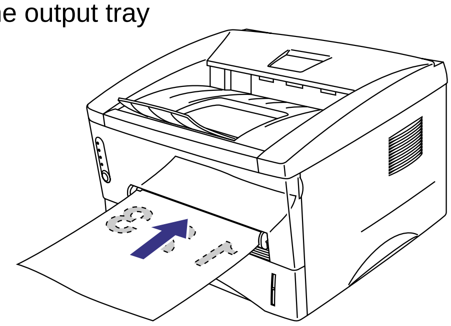


Fig. 2-27

5. CONTROL PANEL OPERATION

There are four LEDs and a button on the control panel. The LEDs indicate the printer status, and pressing the button enables several functions in the printer.

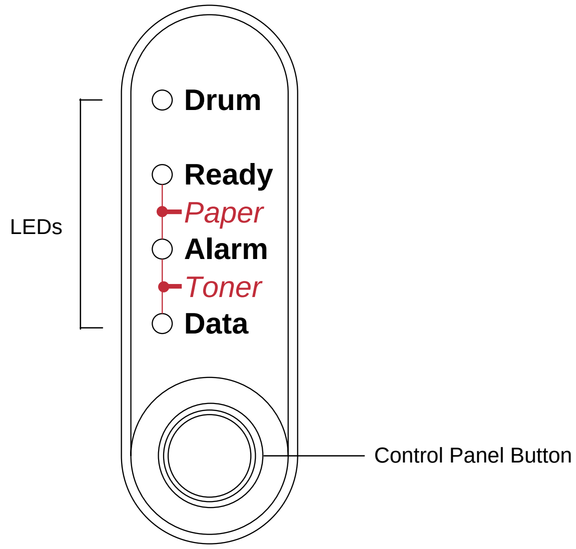


Fig. 2-28

5.1 Ready (Paper) LED Indications

The Ready LED indicates the current status of the printer.

LED	Printer status
OFF	The power switch is off, or the printer is in sleep mode. If the printer is in sleep mode, it will wake up automatically when it receives data or when you press the control panel button.
Blinking	<Blinking at 1 second intervals> The printer is warming up. <Blinking at 2 seconds intervals> The printer is cooling down and stops printing until the internal temperature of the printer lowers.
ON	The printer is ready to print.

This LED also works as the Paper LED with the Alarm LED. They blink simultaneously to indicate a paper error. See Subsection 2.1 'Operator Calls' in CHAPTER 6 for details.

Error	Action
Paper jam	Clear the paper jam and press the panel button if the printer does not automatically resume printing.
No paper	Load paper in the printer and press the panel button.
Misfeed	Re-install the paper and press the panel button.

5.2 Data (Toner) LED Indications

The Data LED indicates the current status of the print data process.

LED	Printer status
OFF	The printer has no print data.
Blinking	The printer is receiving data from the computer or the printer is processing data in memory.
ON	Print data remains in the printer memory. If the Data LED is on for a long period of time and nothing has printed, you need to press the button to print the remaining data.

This LED also works as the Toner LED with the Alarm LED. They blink simultaneously to indicate a toner error. See also Subsection 2.1 'Operator Calls' in CHAPTER 6 for details.

Error	Action
Toner low	Indicates that the toner cartridge is nearly empty. Purchase a new toner cartridge ready for when the 'Toner empty' error is indicated.
Toner empty	Replace the toner cartridge with a new one.

5.3 Drum LED Indications

The Drum LED indicates the drum unit is nearly at the end of its life.

LED	Printer status
OFF	The drum unit can be used.
ON	The drum unit is nearly at the end of its life. It is recommended to obtain a new drum unit to replace the current one.

5.4 Alarm LED Indications

The Alarm LED blinks (with no other LEDs) to indicate a printer error status such as "cover open" or "memory full".

If any other error occurs, the printer indicates the error by blinking the Alarm LED with another LED or by printing an error report. Refer to Subsection 2.2 'Service Calls' in CHAPTER 6.

5.5 Control Panel Button Operations

The control panel button is used for the following purposes depending on the situation.

Operation	Description
Cancel printing	If the button is pressed during printing, the printer immediately stops printing and ejects the paper.
Wake-up	If the printer is in sleep mode, pressing the button wakes it up into the ready status. It will take up to 45 seconds for the printer to go into the ready status.
Form feed	If the Data LED is on, press the button. The printer prints any data remaining in the printer memory.
Error recovery	If an error occurs, the printer will recover from some errors automatically. If the error does not clear automatically, press the button to clear the error and continue printer operation.
Reprint function	You can reprint a print job without sending it from the computer again. When you press the button with the Data LED off, the printer reprints the last job you printed if the whole job can be kept in printer memory. If the print job is too large or there is insufficient memory, the last page only will be reprinted.

5.6 Other Control Features

The printer has the following useful features;

5.6.1 Sleep mode

When the printer does not receive data for a certain period of time (timeout), it enters sleep mode. The default timeout is 5 minutes and it is automatically adjusted to the most suitable time-out setting depending on the frequency of your printer use (Intelligent Sleep Mode).

While the printer is in sleep mode, all the LEDs are off and it is as if it was turned off, but the printer can still receive data from the computer. Receiving a print file or document automatically wakes up the printer to start printing. Pressing the button also wakes up the printer.

NOTE:

- *When the printer goes into sleep mode, the fan will not stop until the printer engine has cooled down. The fan running time varies depending on the sleep mode timeout because the fan running conditions are defined as follows;*

  1) The fan runs for 10 minutes whenever printing finishes.

  2) The fan runs while the printer is in ready status.

  3) The fan runs for at least 5 minutes after the printer goes into sleep mode.

  (EX: If the timeout is 5 minutes, the fan will be running for 5 minutes after the printer goes into sleep mode.)
- *Sleep mode allows the print engine to cool, so the temperature of the room and how long the printer has been in sleep mode affects the warm-up time. This warm-up time can take up to 45 seconds. The Ready LED blinks to indicate that the printer is warming up.*
- *You can change the timeout for the sleep mode with the supplied printer driver (all models) or Remote Printer Console program. The time-out setting is in the range of 1 to 15 minutes. Refer to the Help section in the printer driver or RPC program for more information about the sleep mode setting.*

5.6.2 Test print mode

The printer incorporates various test print modes. The printer enters into each test print mode by panel button operation.

For details on test print mode, see Subsection 10.1 'Test Print Mode' in CHAPTER 6.

6. NETWORK BOARD OPERATION (FOR HL-1270N ONLY)

The network board installed in the back of the printer allows you to share the printer on a network.

6.1 Preparing the BR-net Board

6.1.1 Connect the Ethernet cable

(1) Turn off the printer power.

(2) Connect one end of the Ethernet cable to the 10/100Base TX port of the HL-1270N.

(3) Connect the other end of your Ethernet cable to a free port on your Ethernet hub.

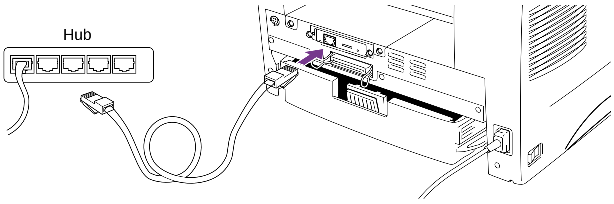


Fig. 2-29

(3) Turn on the printer power.

6.1.2 Install the BRAdmin32: configuration utility (for Windows 95/98/NT 4.0 users only)

NOTE:

If you use another operating system, refer to the Network User's Guide on the supplied CD-ROM.

(1) Insert the supplied CD-ROM into your CD-ROM drive.

(2) Select the HL-1270N model button and follow the screen instructions.



Fig. 2-30

(3) The BRAdmin32 utility will then be installed onto your computer. When the software is installed, re-boot your computer.

(4) The Troubleshooting information table on the right contains further configuration details.



Fig. 2-31

6.1.3 Print configuration page

Press the Network Test button for less than 5 seconds to print a configuration page.

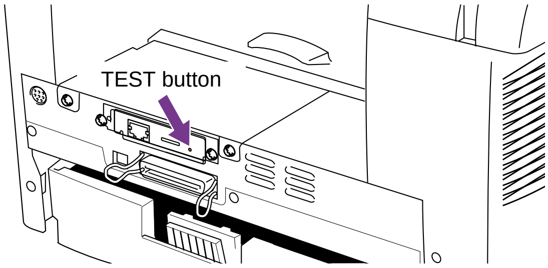


Fig. 2-32

6.2 Functions

6.2.1 LED functions

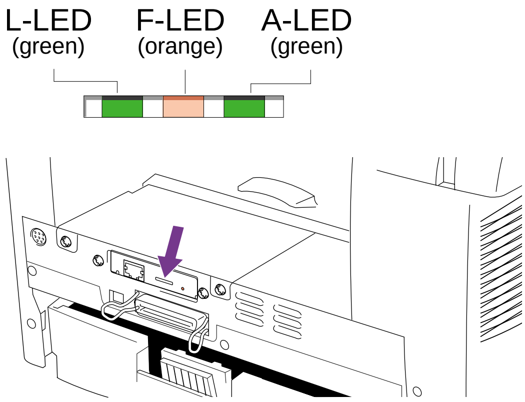


Fig. 2-33

L-LED (green): Link activity

This LED is on if there is a valid connection to the network (either 10BaseT or 100BaseTX). It is off if no network is detected.

F-LED (orange): Fast Ethernet

This LED will be on if the print server is connected to a 100BaseTX Fast Ethernet network. It is off if the print server is connected to a 10BaseT network.

A-LED (green): Transmission activity

This LED will blink as the print server receives or transmits data.

6.2.2 Factory default setting

If you wish to reset the print server back to its default factory settings (resetting all information such as the password and IP address information), hold down the Network Test button for more than 5 seconds.

CHAPTER3 THEORY OF OPERATION

1. ELECTRONICS

1.1 General Block Diagram

HL-1030/1240

Fig. 3-1 shows a general block diagram of the HL-1030/1240 printer.

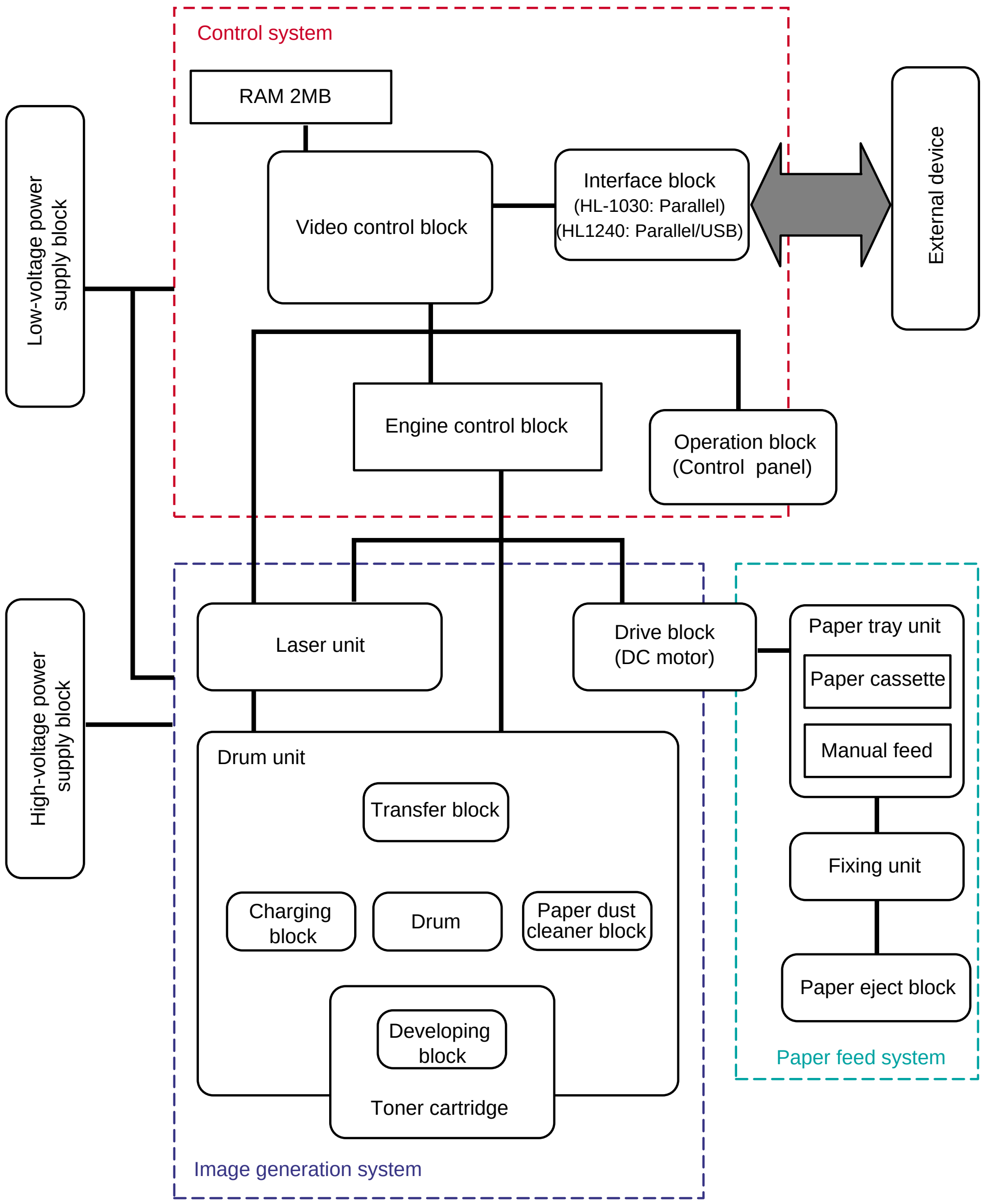


Fig. 3-1

HL-1250

Fig. 3-2 shows a general block diagram of the HL-1250 printer.

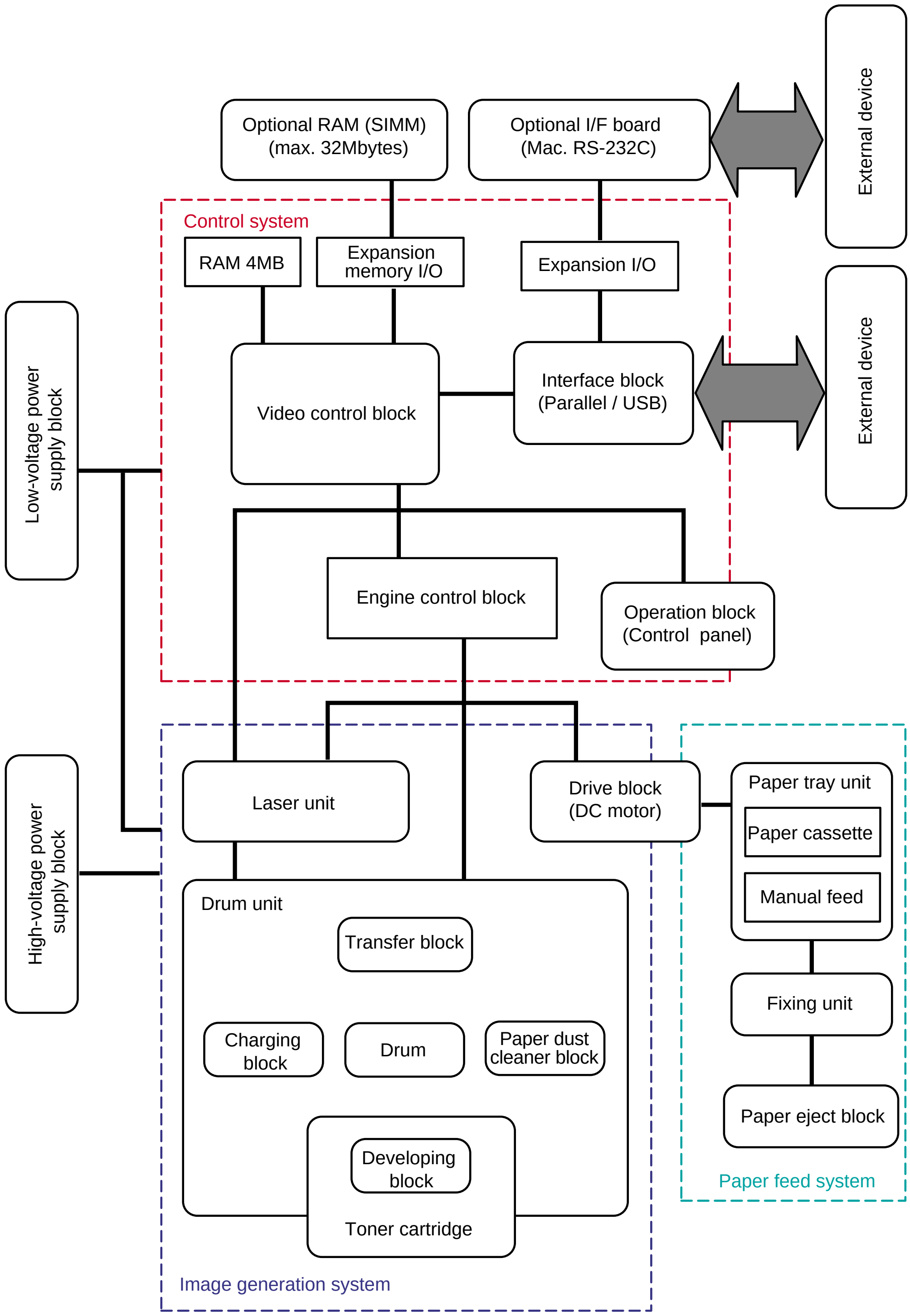


Fig. 3-2

HL-1270N

Fig. 3-3 shows a general block diagram of the HL-1270N printer.

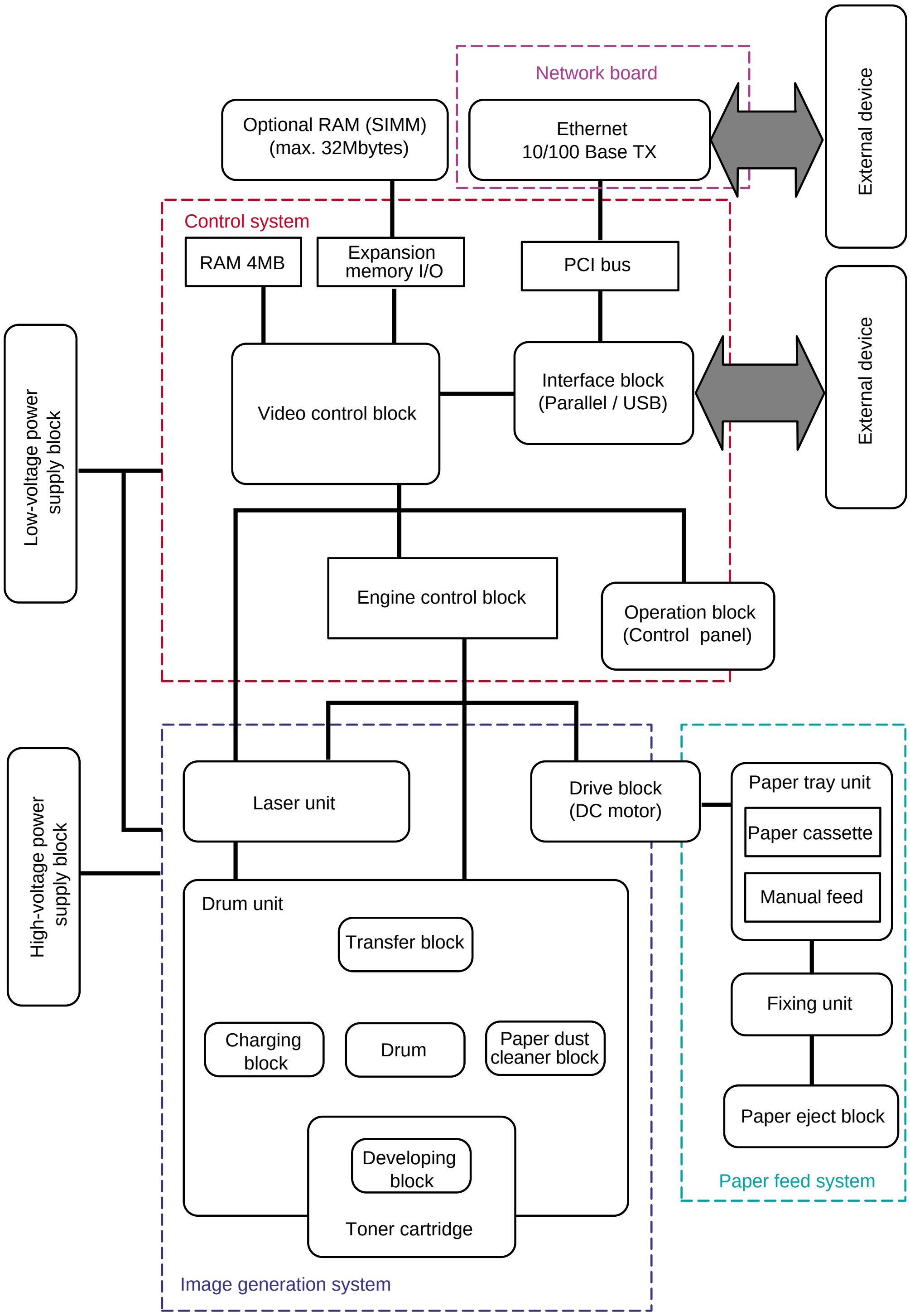


Fig. 3-3

1.2 Main PCB Block Diagram

HL-1030/1240

Fig. 3-4 shows the block diagram of the main PCB of the HL-1030/1240 printer.

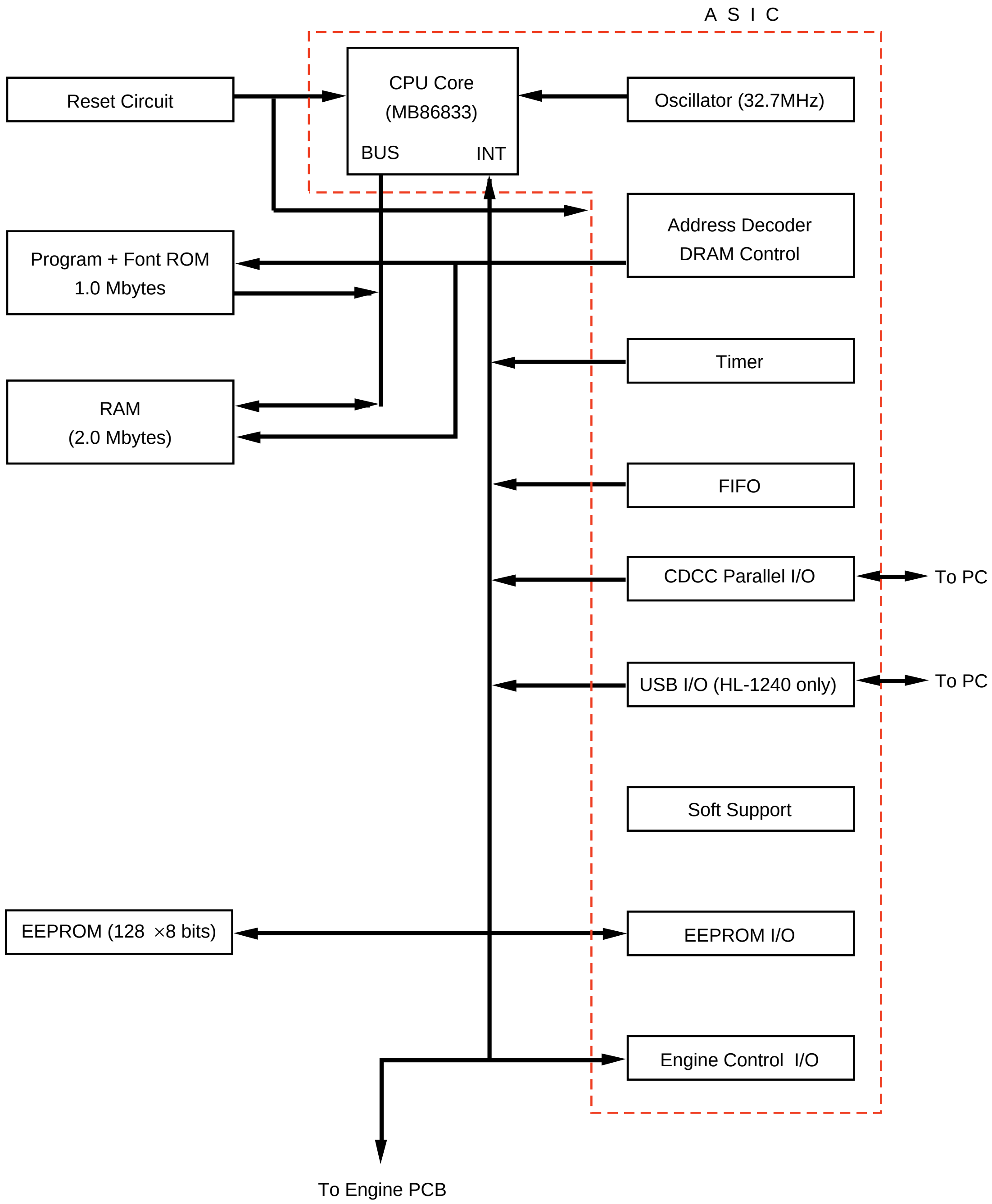


Fig. 3-4

HL-1250

Fig. 3-5 shows the block diagram of the main PCB of the HL-1250 printer.

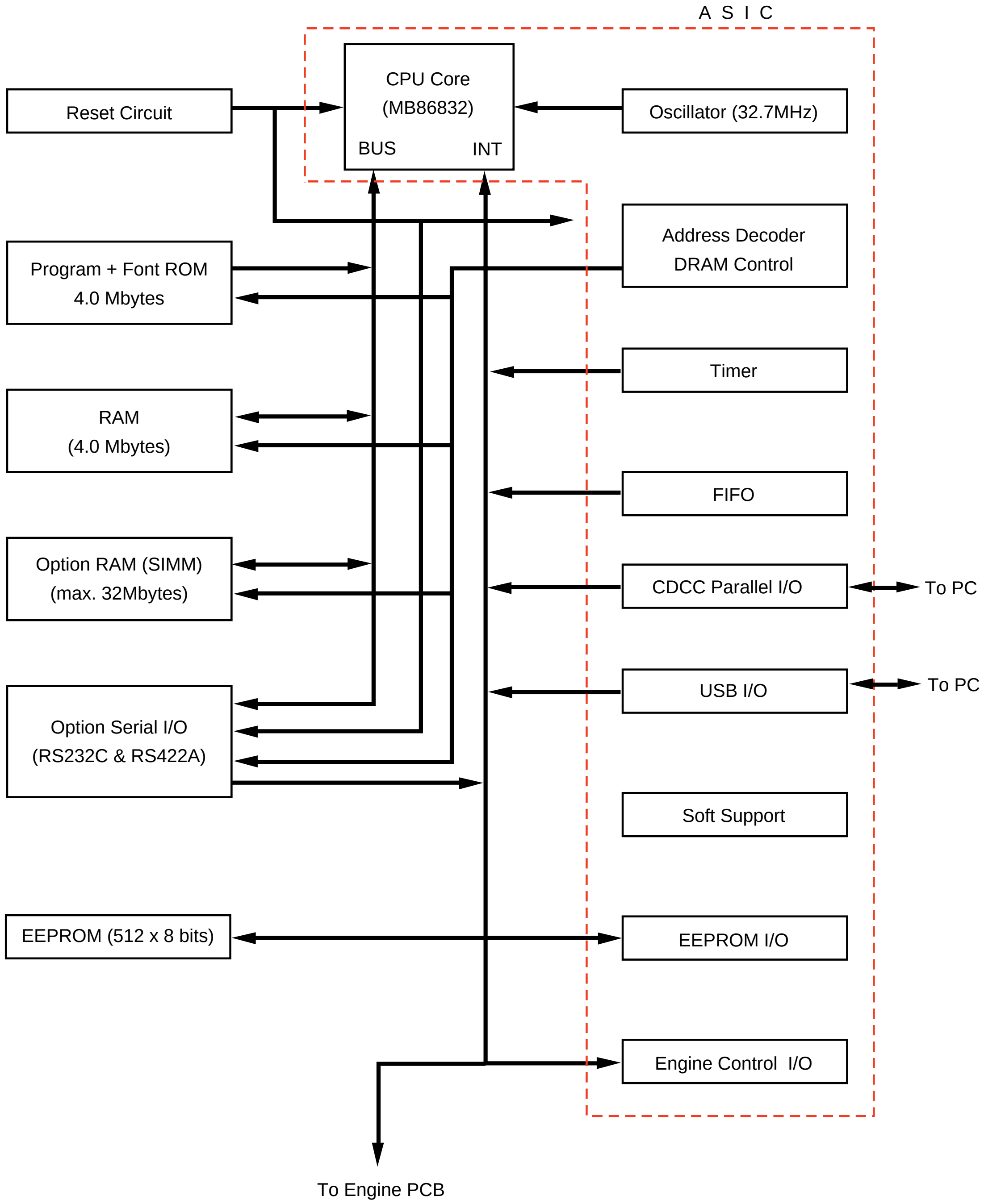


Fig. 3-5

HL-1270N

Fig. 3-6 shows the block diagram of the main PCB of the HL-1270N printer.

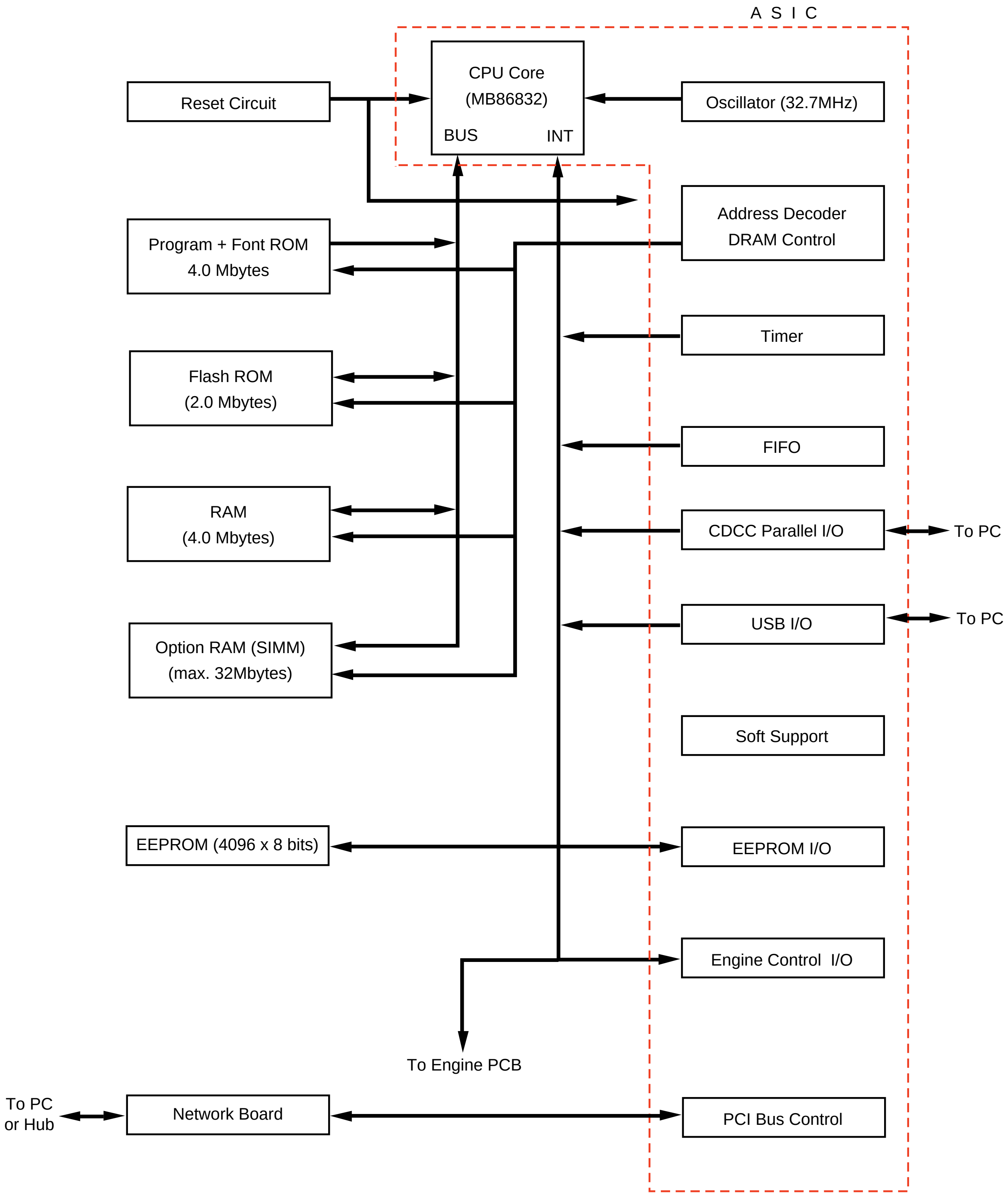


Fig. 3-6

1.3 Main PCB

For the entire circuit diagram of the main PCB, see Appendix 11 to 17.

1.3.1 ASIC

HL-1030/1240

A Fujitsu 32bit RISC CPU, MB86833 (SPARC lite) is built in the ASIC. While the CPU is driven with a clock frequency of 33 MHz in the user logic block, it itself runs at 66 MHz, which is generated by multiplying the source clock by two.

The functions of the interface block communication with external devices are described below;

(1) IEEE1284

Stores the data received from the PC into DRAM as controlled by the DMA controller. It is applicable to both normal receiving and bi-directional communication (nibble mode, byte mode, ECP mode).

(2) USB interface (for HL-1240 only)

Stores the data received from the PC into DRAM as controlled by the DMA controller. The transmission speed is 12Mbps.

(3) Engine GA transfer circuit

Communicates with the engine GA by a full-duplex synchronous serial method. The communication speed is 2Mbps.

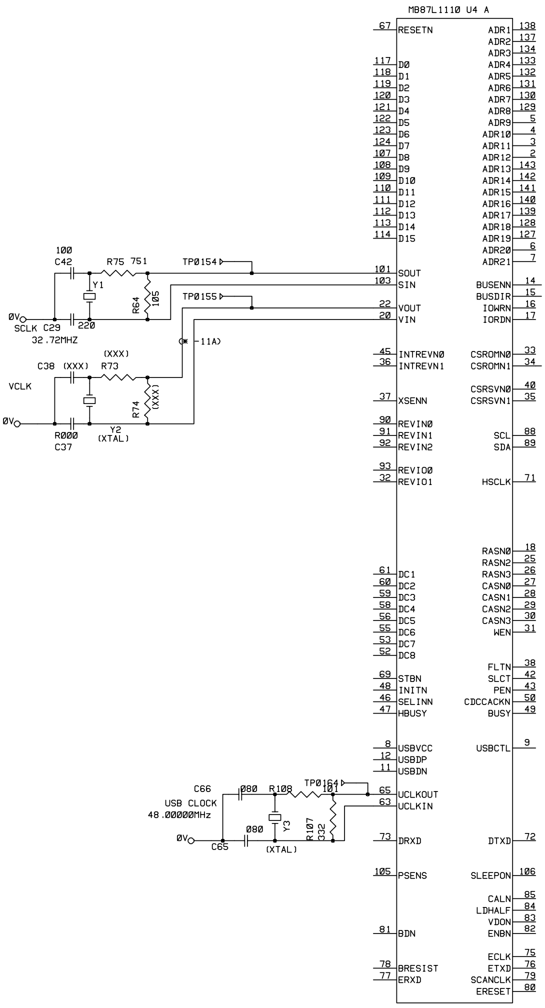


Fig. 3-7

HL-1250/1270N

A Fujitsu 32bit RISC CPU, MB86832 (SPARC lite) is built in the ASIC. While the CPU is driven with a clock frequency of 33 MHz in the user logic block, it itself runs at 66 MHz, which is generated by multiplying the source clock by two.

The functions of the interface block communication with external devices are described below;

(1) IEEE1284

Stores the data received from the PC into DRAM as controlled by the DMA controller. It is applicable to both normal receiving and bi-directional communication (nibble mode, byte mode, ECP mode).

(2) USB interface

Stores the data received from the PC into DRAM as controlled by the DMA controller. The transmission speed is 12Mbps.

(3) Engine GA transfer circuit

Communicates with the engine GA by a full-duplex synchronous serial method. The communication speed is 2Mbps.

(4) PCI interface (for HL1270N only)

Sends and receives the data to and from the Ethernet controller ‘AM79C973AKC’. It is PCI specification revision 2.2 compliant.

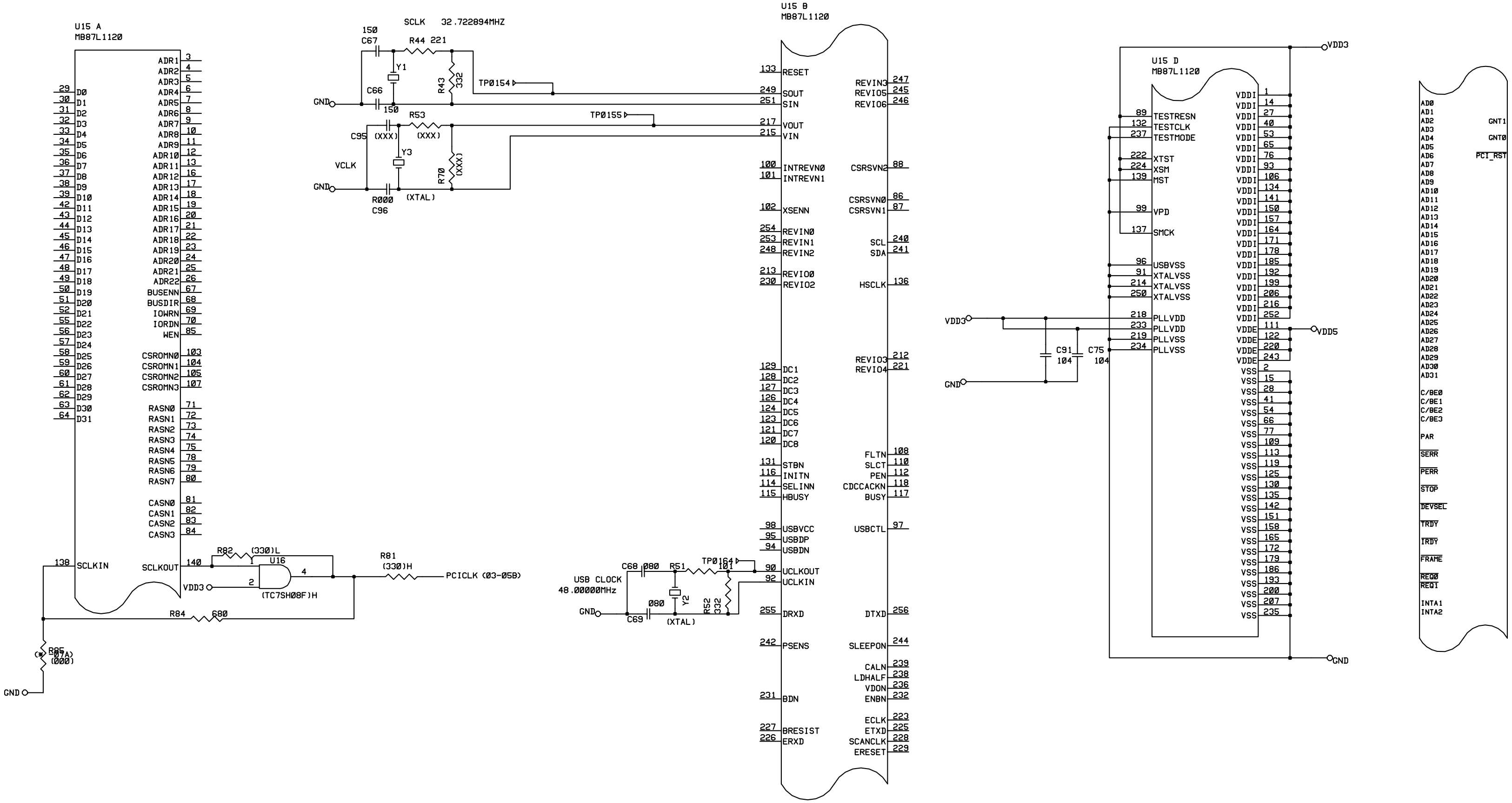

U15 A
MB87L1120
U15 B
MB87L1120
U15 D
MB87L1120
SCLK 32.722894MHZ
VCLK
USB CLOCK
48.00000MHz
PCICLK (03-050)
(TC7SH08F)H
VDD3
VDD5
GND

Fig. 3-8

1.3.2 ROM

HL-1030/1240

An 8 Mbits ROM (x 16 bit) is fitted.

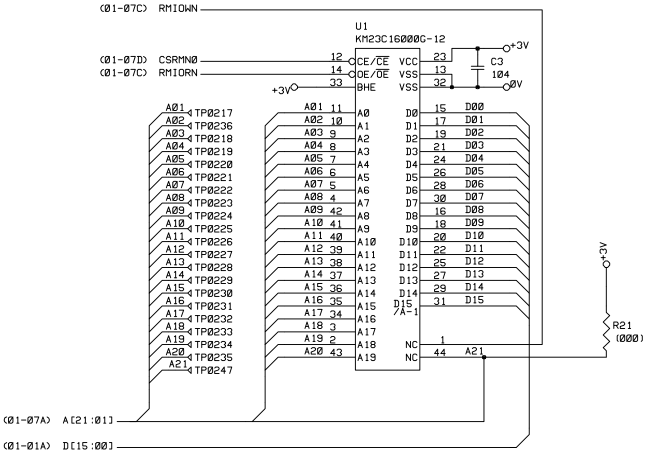


Fig. 3-9

HL-1250

Two 16 Mbits ROMs (x 16 bit) are fitted.

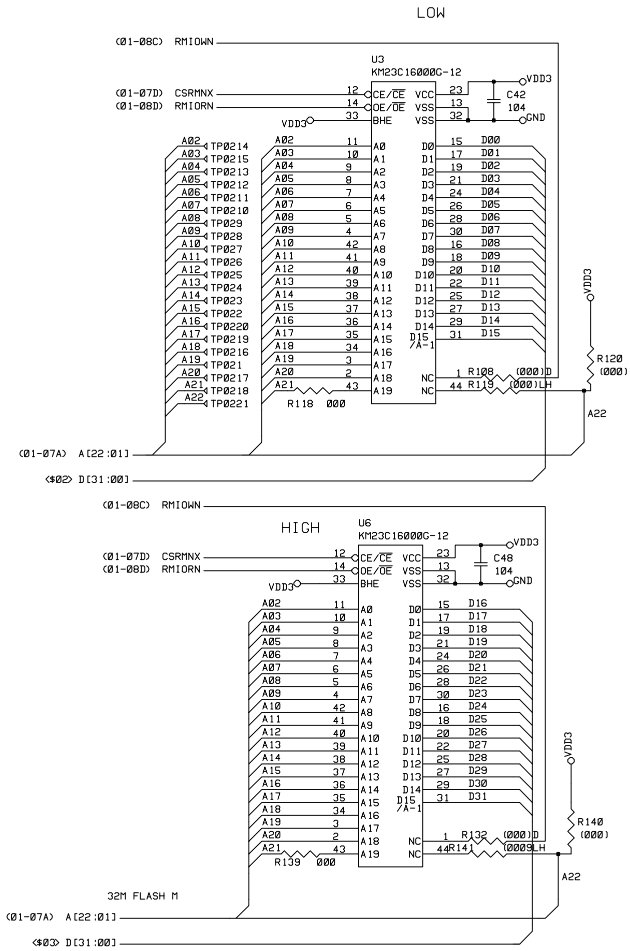


Fig. 3-10

HL-1270N

Two 32 Mbits ROMs (x 16 bit) are fitted.

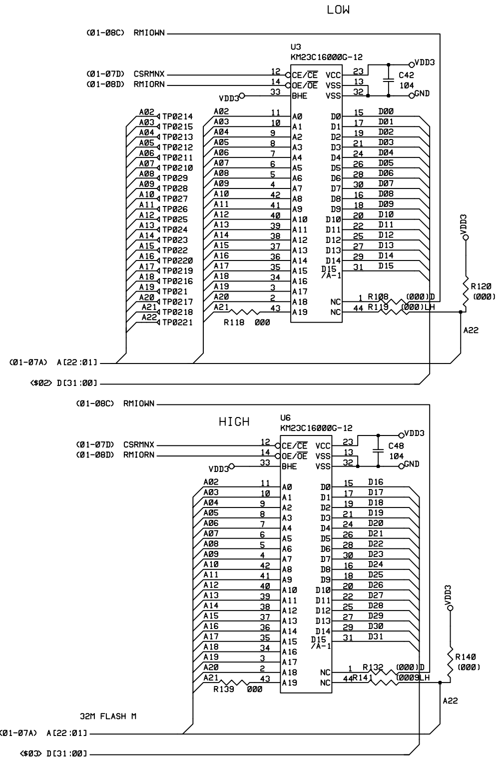


Fig. 3-11

1.3.3 Flash ROM (for HL-1270N only)

HL-1270N

Two 8 Mbits flash ROMs (x 16 bit) are fitted.

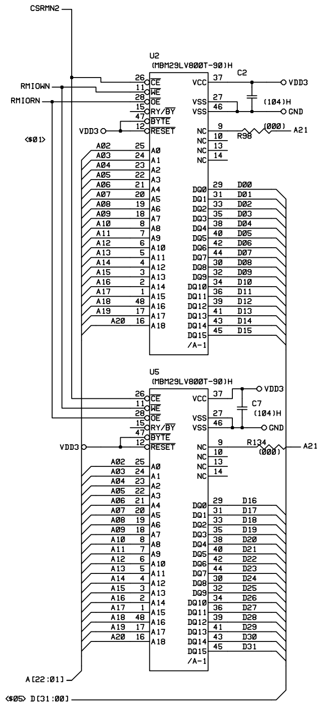


Fig. 3-12

1.3.4 DRAM

HL-1030/1240

A 16M-bit DRAM (x 16 bits) is used as the RAM.

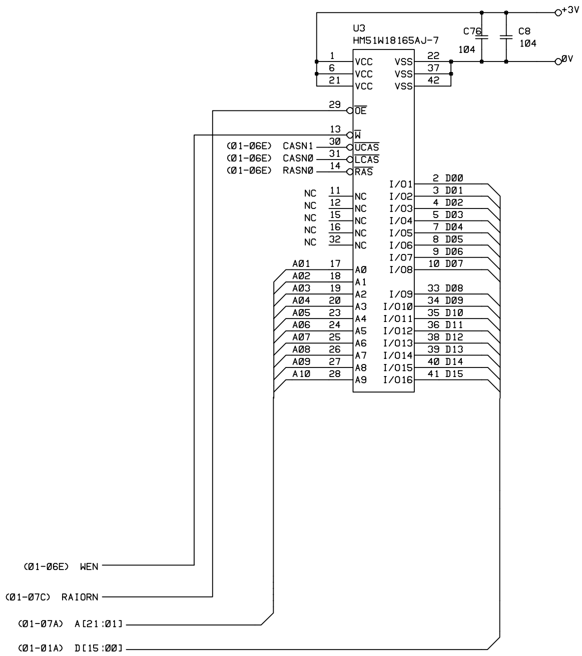


Fig. 3-13

HL-1250/1270N

Two 16M-bit DRAMs (x 16 bits) are used as the RAM.

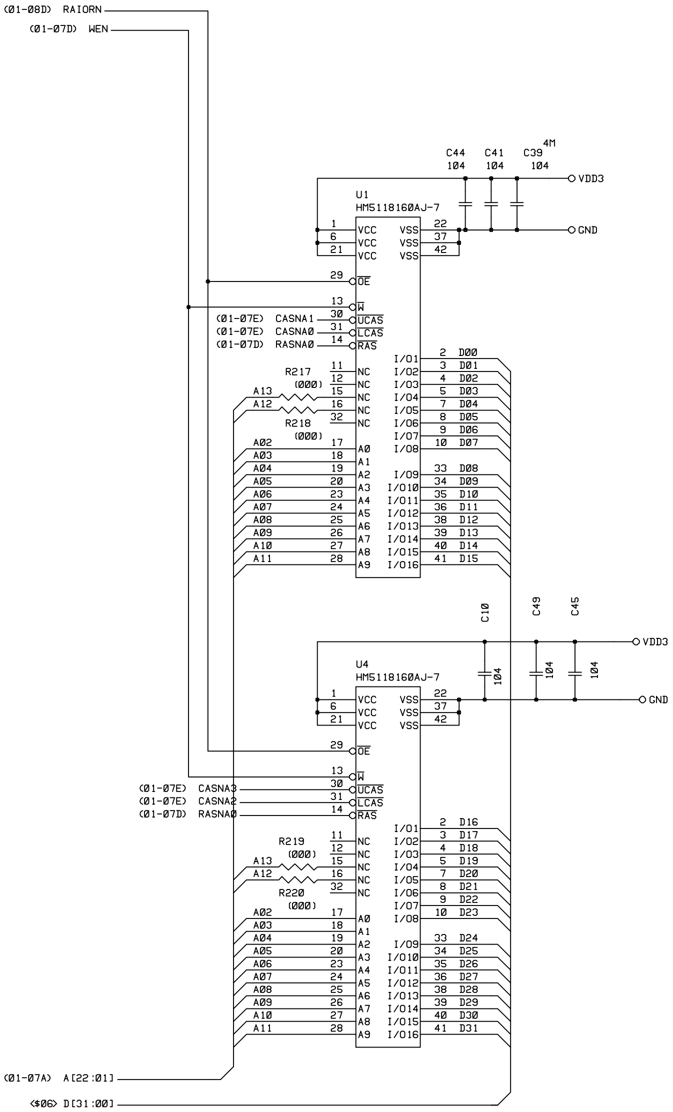


Fig. 3-14

1.3.5 Optional RAM

HL-1250/1270N

A 32bit (72 pin) SIMM can be fitted as optional RAM. The main PCB has one slot and the capacity of SIMM can be from 1 Mbyte to 32 Mbytes.

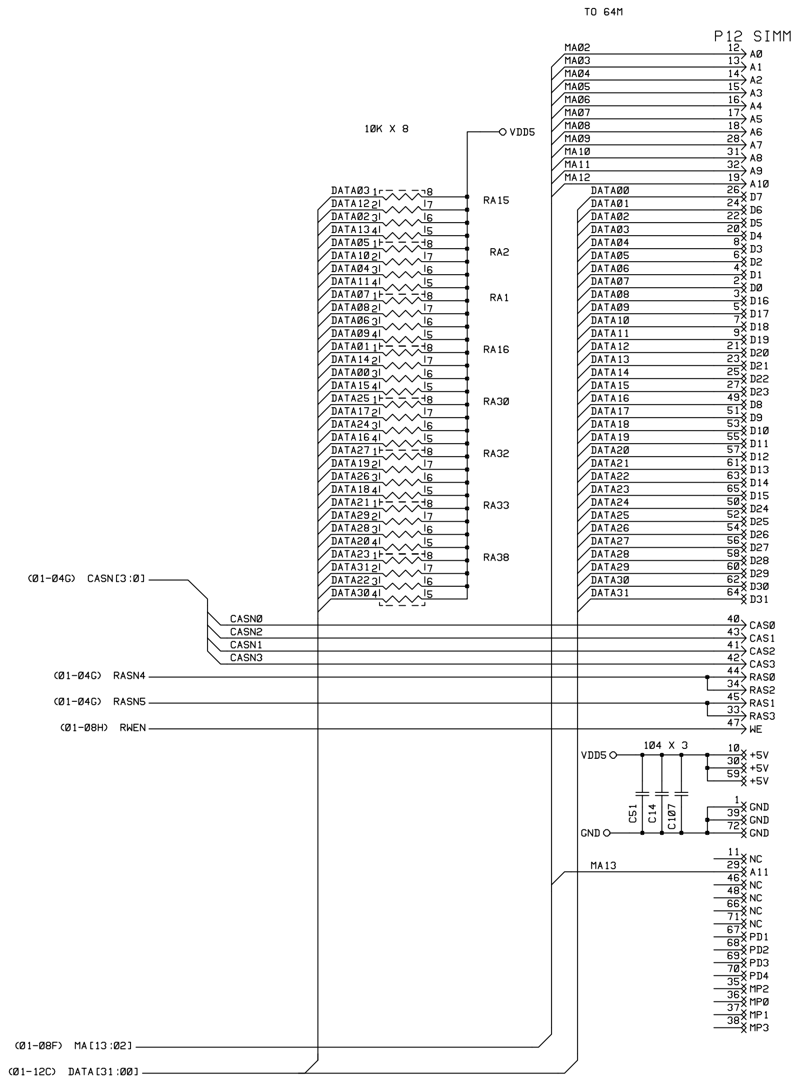


Fig. 3-15

1.3.6 Optional serial I/O

HL-1250

The interrupt of the serial I/O is input to the EXINT terminal of the ASIC, and is recognized by the CPU. A 32-byte register is provided for this I/O, which is read from and written to by the CPU.

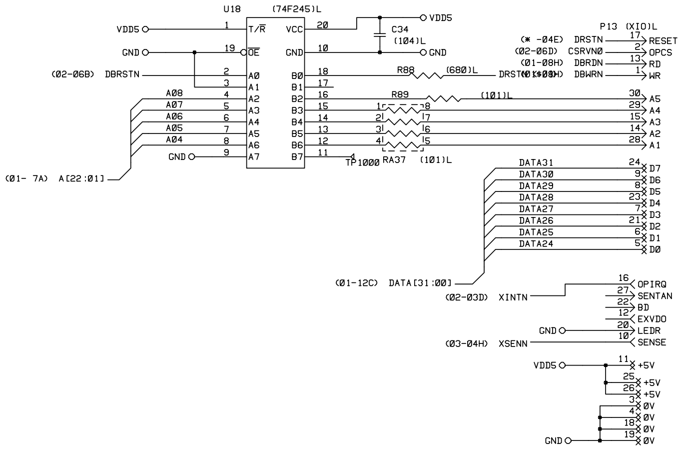


Fig. 3-16

1.3.7 PCI bus

HL-1270N

The interface of the PCI bus is PCI specification revision 2.2 compliant.

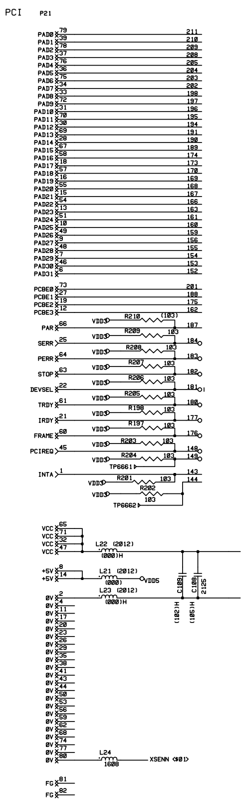


Fig. 3-17

1.3.8 EEPROM

HL-1030/1240

The EEPROM is X24C01A type of two-wire method with a 128 x 8 bits configuration.

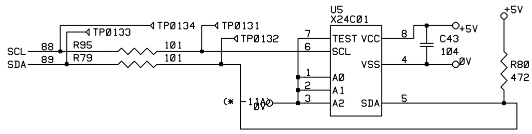


Fig. 3-18

HL-1250

The EEPROM is X24C04 type of two-wire method with a 512 x 8 bits configuration.

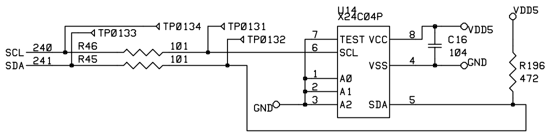


Fig. 3-19

HL-1270N

The EEPROM is X24C32 type of two-wire method with a 4096 x 8 bits configuration.

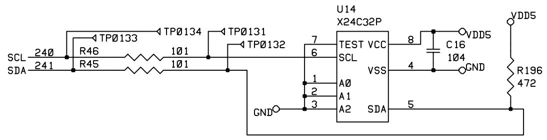


Fig. 3-20

1.3.9 Reset circuit

HL-1030/1240

The reset IC is a RN5VD42A. The reset voltage is 4.2V (typ.) and the LOW period of reset is 80ms (typ.)

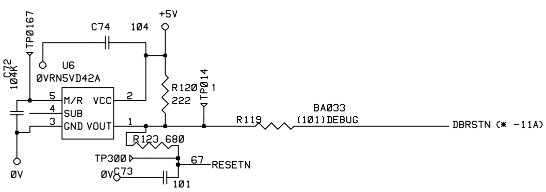


Fig. 3-21

HL-1250/1270N

The reset IC is a RN5VD42A. The reset voltage is 4.2V (typ.) and the LOW period of reset is 80ms (typ.)

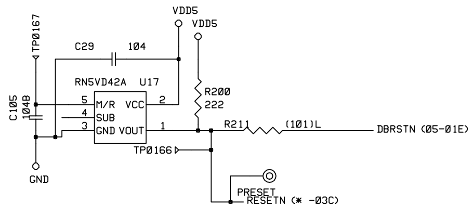


Fig. 3-22

1.3.10 Engine I/O

HL-1030/1240

Fig. 3-22 shows the engine interface circuit. The interface with the engine PCB is by full-duplex synchronous serial method.

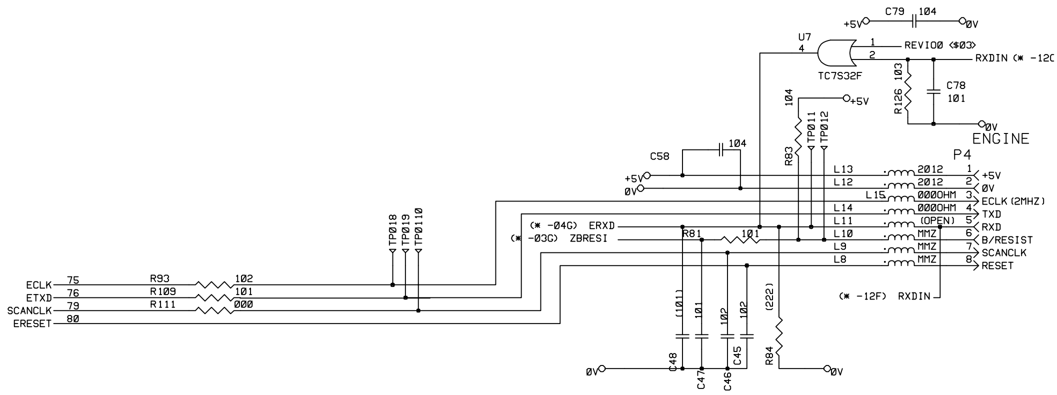


Fig. 3-23

HL-1250/1270N

Fig. 3-23 shows the engine interface circuit. The interface with the engine PCB is by full-duplex synchronous serial method.

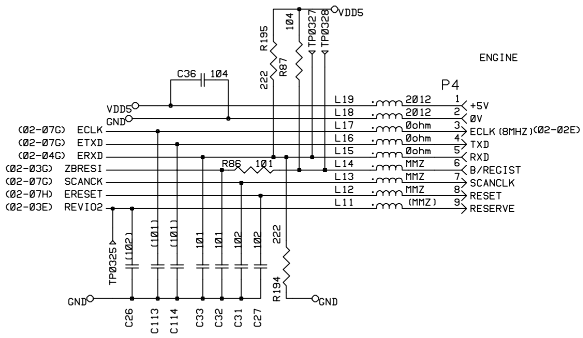


Fig. 3-24

1.4 Engine PCB

The gate array which transforms the serial signal from the main PCB into the parallel signal is mounted on the engine PCB.

The engine PCB controls the following parts by using the transferred signal data;

- Main motor
- Panel PCB
- Fan motor
- Thermistor
- Polygon motor
- Solenoid
- High-voltage power supply
- Toner sensor
- Cover sensor
- Front registration sensor
- Rear registration sensor
- Upper paper cassette sensor (HL-1250/1270N only)
- Lower paper cassette registration sensor (HL-1250/1270N only)

For the circuit diagram of the engine PCB, see Appendix 18.

1.5 BR-net PCB (for HL-1270N only)

The BR-net PCB is connected to the ASIC mounted on the main PCB through the PCI bus.

The Ethernet controller, AM79C973AKC is mounted on the BR-net PCB. The controller incorporates the 10/100 Mbps physical interface which conforms to IEEE 802.3 and is connected with the external Ethernet through the RJ-45 connector.

For the circuit diagram of the BR-net PCB, see Appendix 19.

1.6 Power Supply

1.6.1 Low-voltage power supply

The power supply uses a switching regulation system to generate the regulated DC power (+5V and +24V), which are converted from the AC line.

The regulated output and the production code of each power supply are listed below;

Regulated Output	Production Code
+5V / 1.6 A +24V / 2.15 A	100V: MPW1555 200V: MPW1455

For the circuit diagram of the low-voltage power supply PCB, see Appendix 20 or 21.

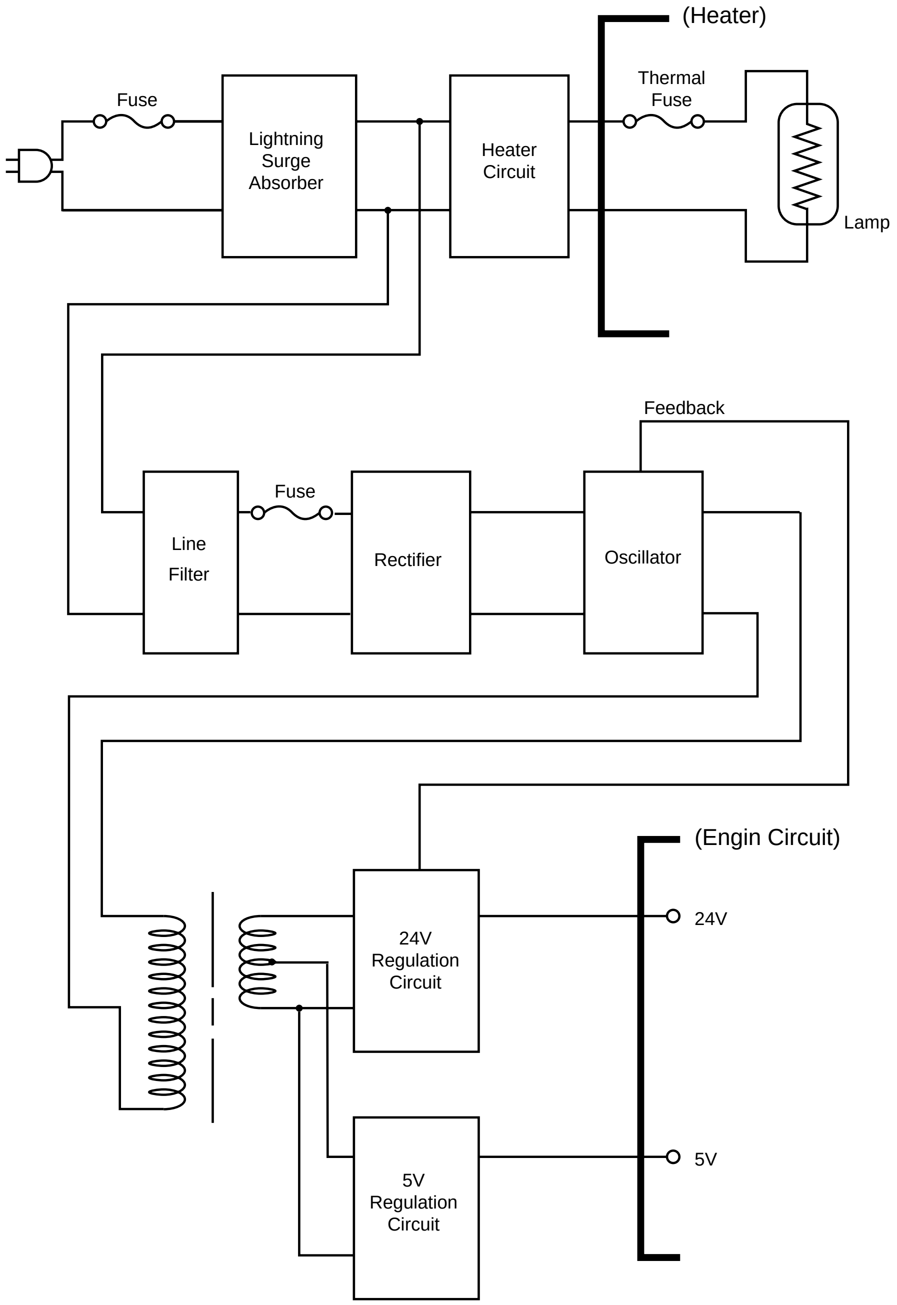


Fig. 3-25

1.6.2 High-voltage power supply

The high-voltage power supply generates and outputs the voltages and currents for the charging, development and transfer functions.

For the circuit diagram of the high-voltage power supply PCB, see Appendix 22.

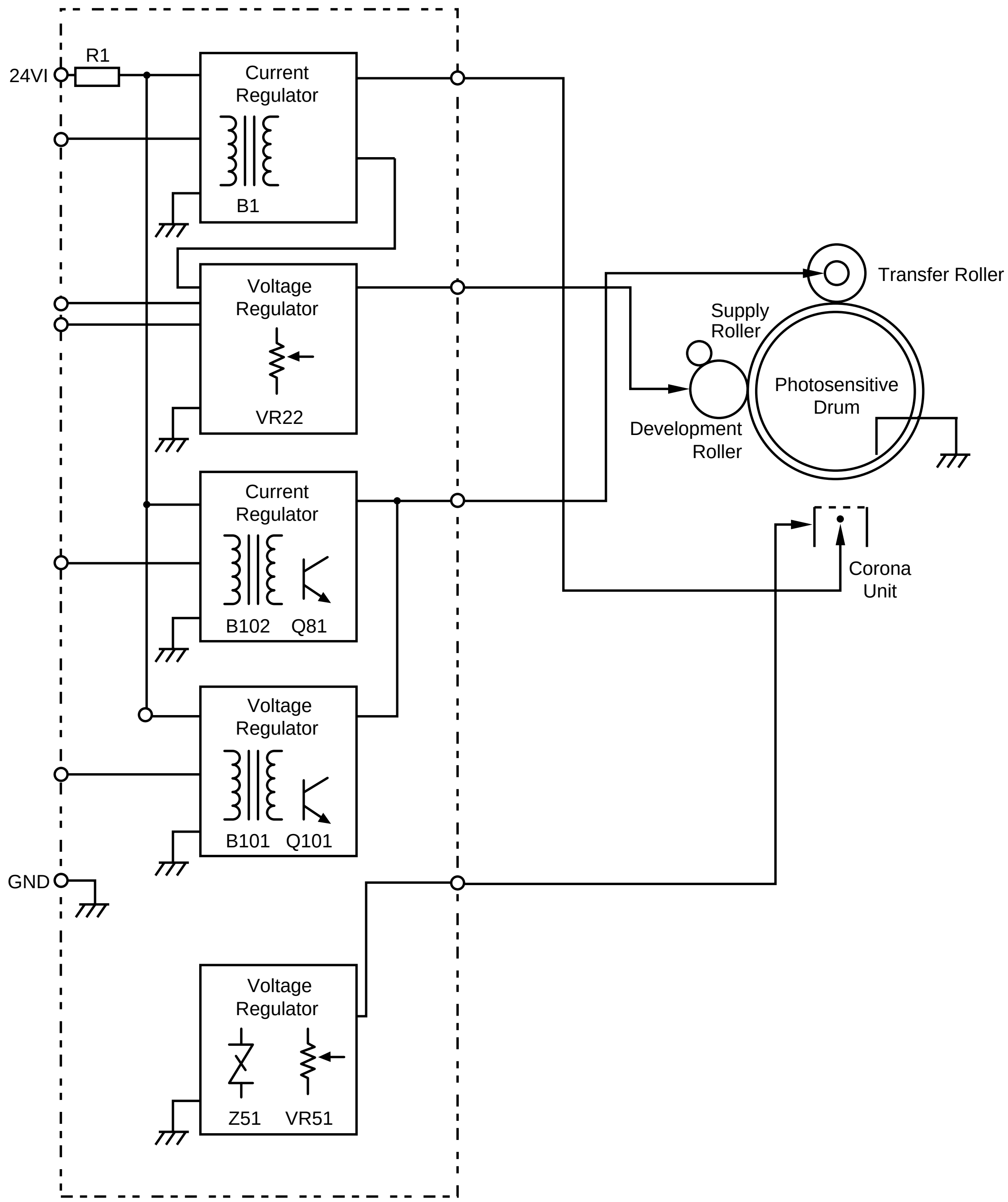


Fig. 3-26

2. MECHANICS

2.1 Overview of Printing Mechanism

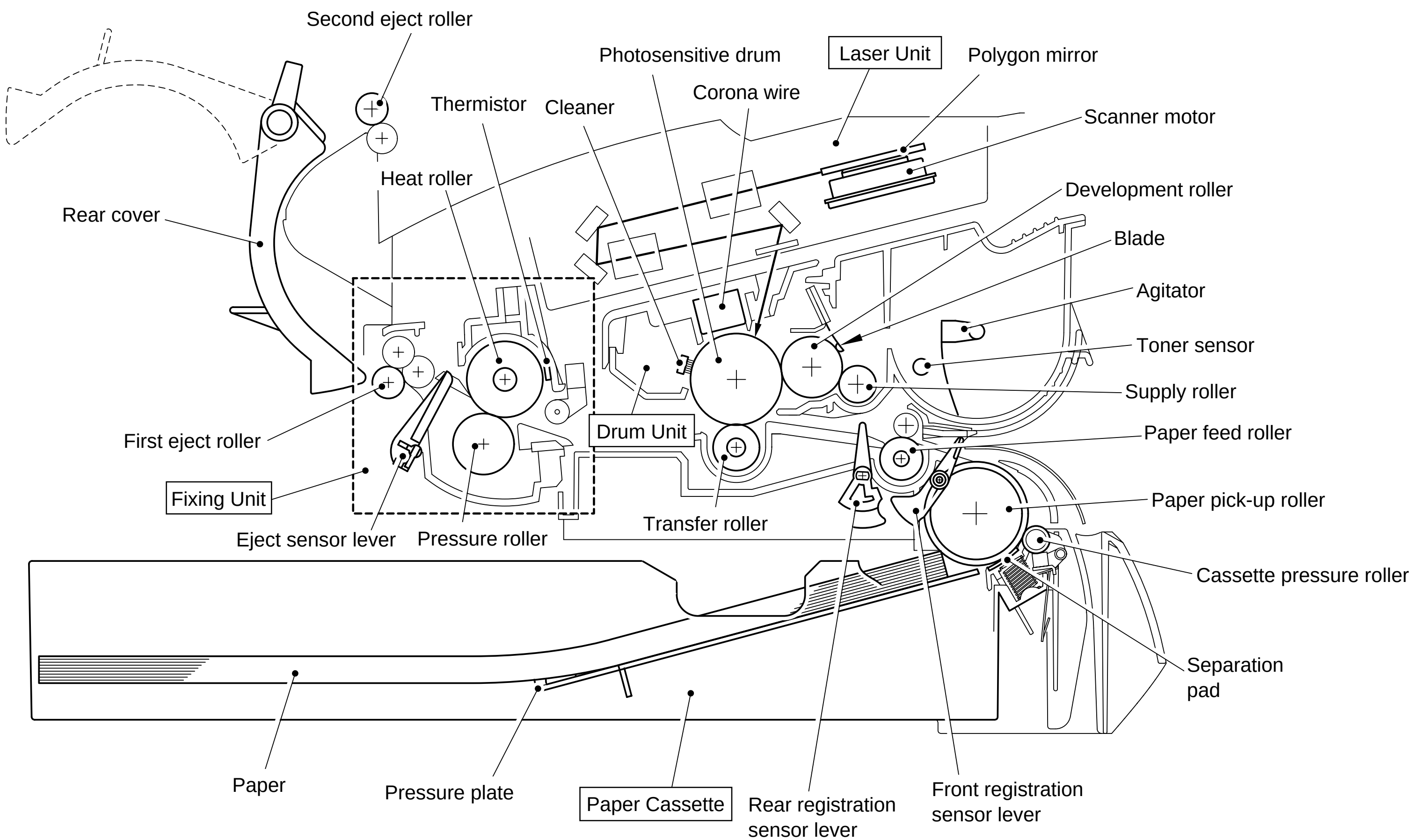


Fig. 3-27

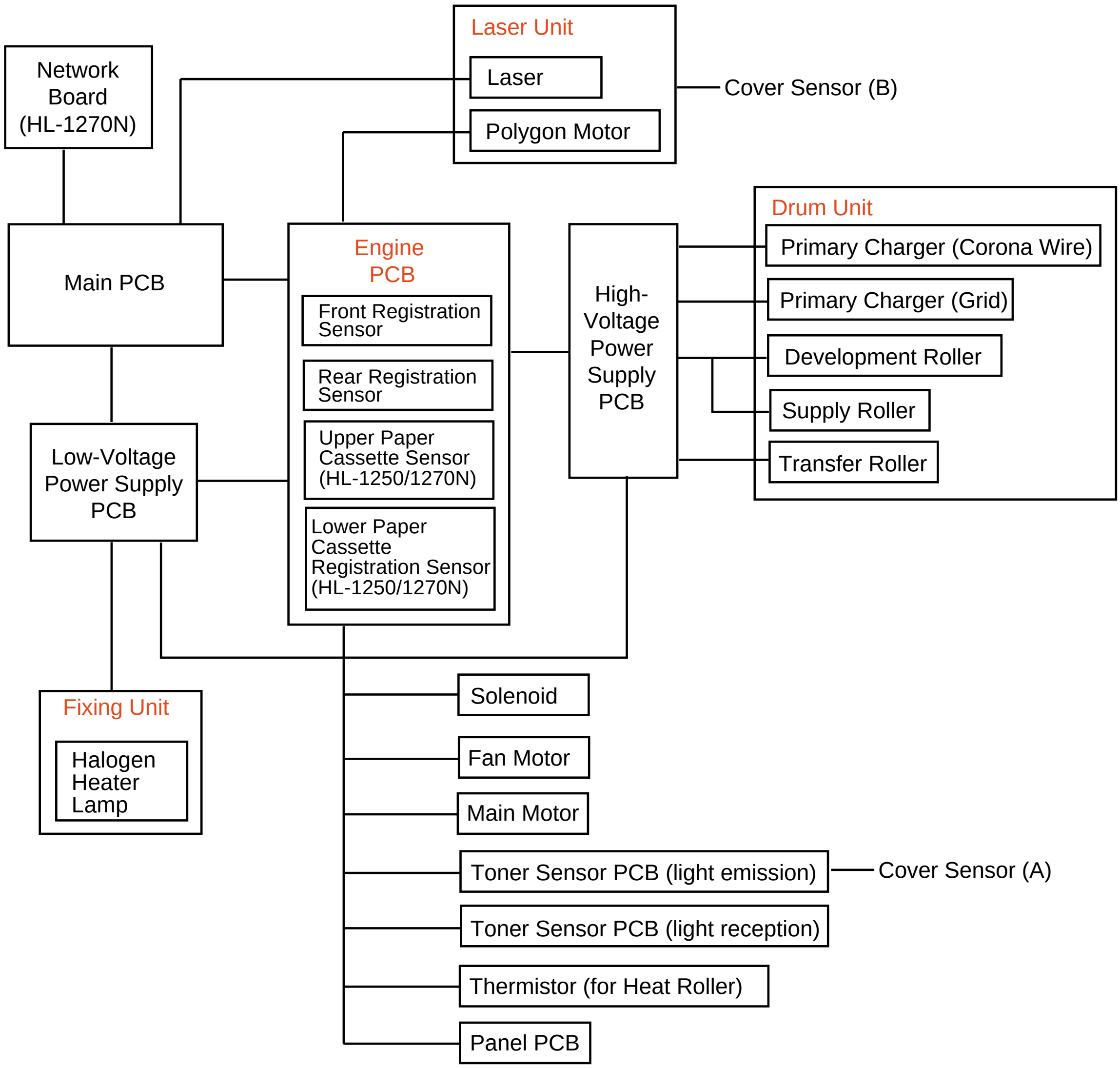

Laser Unit
Laser
Polygon Motor
Cover Sensor (B)
Network Board (HL-1270N)
Main PCB
Engine PCB
Front Registration Sensor
Rear Registration Sensor
Upper Paper Cassette Sensor (HL-1250/1270N)
Lower Paper Cassette Registration Sensor (HL-1250/1270N)
High-Voltage Power Supply PCB
Drum Unit
Primary Charger (Corona Wire)
Primary Charger (Grid)
Development Roller
Supply Roller
Transfer Roller
Low-Voltage Power Supply PCB
Fixing Unit
Halogen Heater Lamp
Solenoid
Fan Motor
Main Motor
Toner Sensor PCB (light emission)
Cover Sensor (A)
Toner Sensor PCB (light reception)
Thermistor (for Heat Roller)
Panel PCB

Fig. 3-28

2.2 Paper Transfer

2.2.1 Paper supply

The paper pick-up roller picks up one sheet of paper from the paper cassette every time it is rotated and feeds it to the paper feed roller.

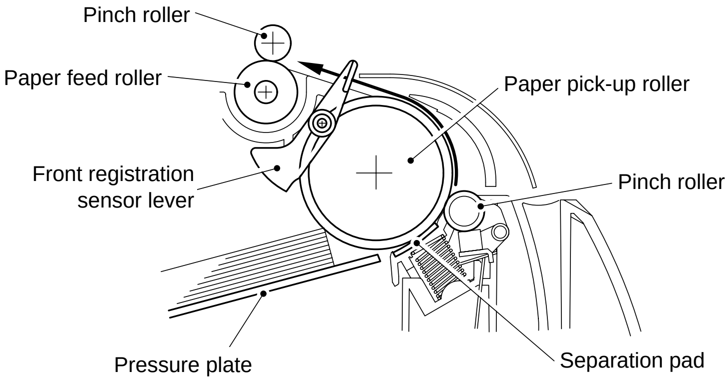


Fig. 3-29

The paper is gripped between the paper pick-up roller and the separation pad and separated into individual sheets.

The pick-up roller is directly connected to the clutch mechanism, whose rotation is stopped by the stopper arm. When the pick-up solenoid is activated, the clutch mechanism is engaged by the solenoid action and the paper pick-up roller is driven. The paper drawn out of the tray by the pick-up roller pushes against the front registration sensor lever and the paper top position/absence of paper is detected by sensing the motion of the lever.

2.2.2 Paper registration

After the paper top position is detected by the front registration sensor, the paper, separated into individual sheets by the paper pick-up roller, is fed further for a specified time, and the paper top position reaches the paper feed roller so that the paper skew is adjusted. Then, the solenoid is turned off, the paper feed roller starts turning, and the paper is fed to the transfer block in the drum unit.

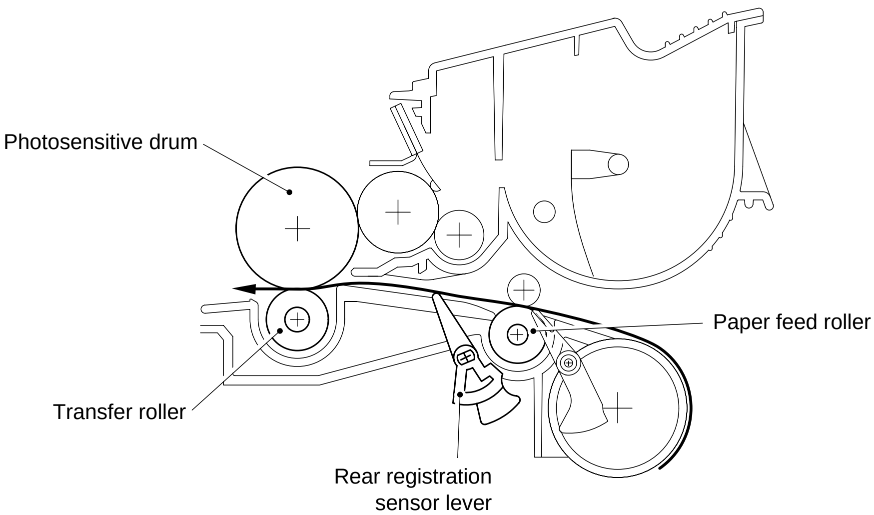


Fig. 3-30

The rear registration sensor in the path from the feed roller to the transfer roller controls the first print position on the paper.

2.2.3 Paper eject

After the printing image on the photosensitive drum is transferred onto the paper, the paper is fed to the fixing unit to fix unfixed toner onto the paper.

Afterwards, the paper is ejected from the fixing unit by the first eject roller in the fixing unit. The eject sensor lever detects whether the paper is ejected correctly or not.

After the paper exits from the first eject roller, the paper is turned by the rear cover and ejected face down into the top output tray through the second eject roller. If the rear cover is open, the paper is ejected face up straight to the printer rear (straight paper path).

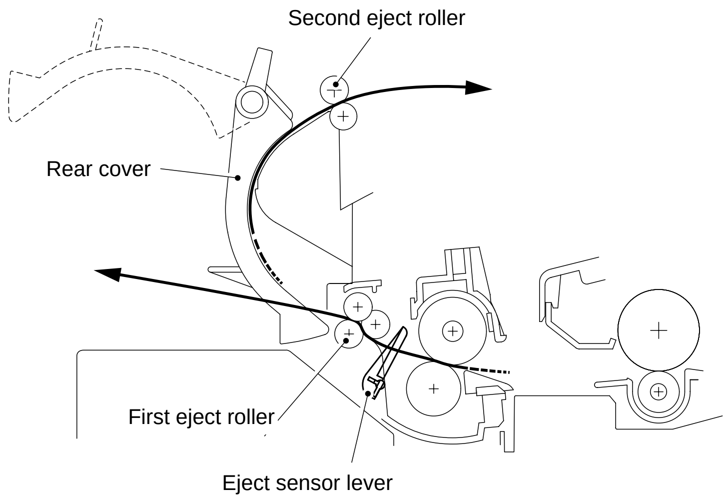


Fig. 3-31

2.3 Sensors

2.3.1 Cover sensors A and B

Detect opening and closing of the front cover.

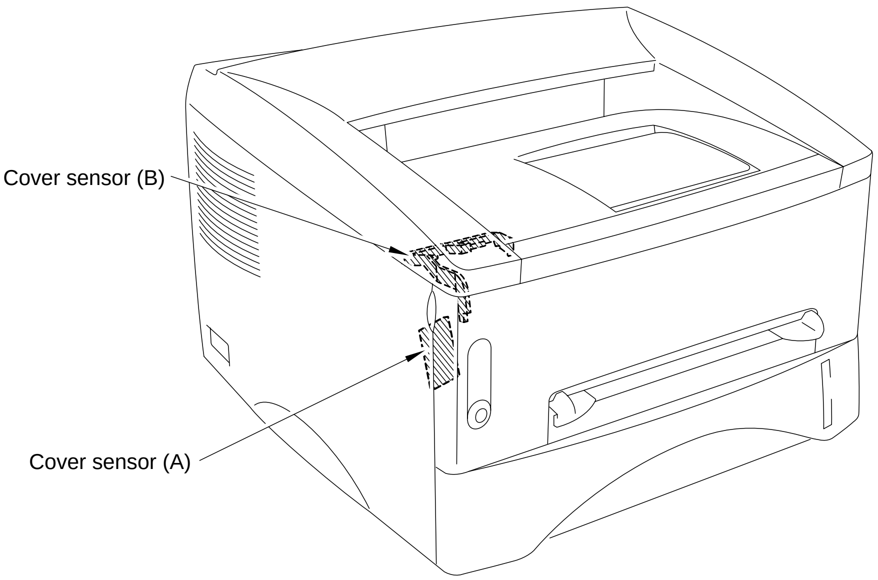


Fig. 3-32

2.3.2 Toner sensor

Detects if there is toner in the toner cartridge. The toner sensor at the left side emits light through the window on the left side of the toner cartridge, then the toner sensor at the right side receives it when the toner is low. They also detect whether or not the drum unit is installed. (The toner cartridge is installed in the drum unit.)

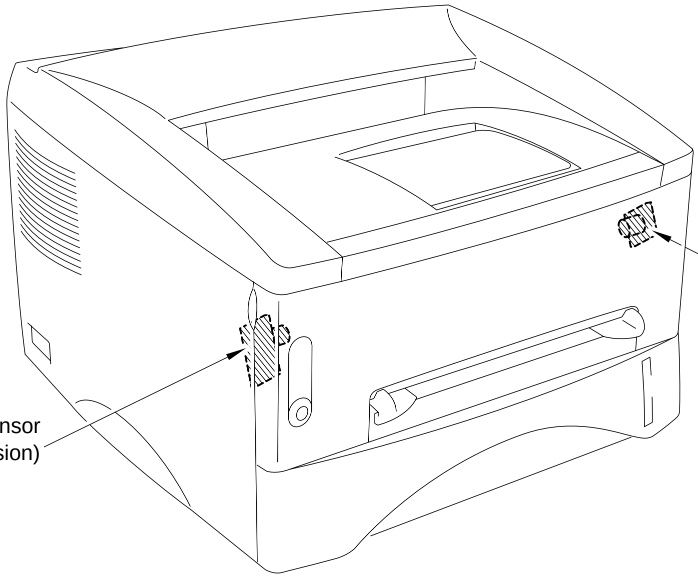


Fig. 3-33

2.4 Drum Unit

2.4.1 Photosensitive drum

Generates the latent electrostatic image and develops the image on the drum surface.

2.4.2 Primary charger

Forms a uniform charge on the drum surface.

(1) Corona wire
Generates the ion charge on the drum.

(2) Grid
Spreads the ion charge evenly over the drum surface.

2.4.3 Transfer roller

Transfers the toner image to the paper from the drum surface.

2.4.4 Cleaner

Removes the paper dust or dirt on the surface of the photosensitive drum.

2.5 Toner Cartridge

Develops the electrostatic latent image on the photosensitive drum with toner and forms the visible image.

2.6 Print Process

2.6.1 Charging

The drum is charged to approximately 870V by an ion charge which is generated by the primary charger. The charge is generated by ionization of the corona wire, which has a DC bias from the high-voltage power supply applied to it. The flow of the ion charge is controlled by the grid to ensure it is distributed evenly on the drum surface. The aluminum drum sleeve in the photosensitive drum is grounded.

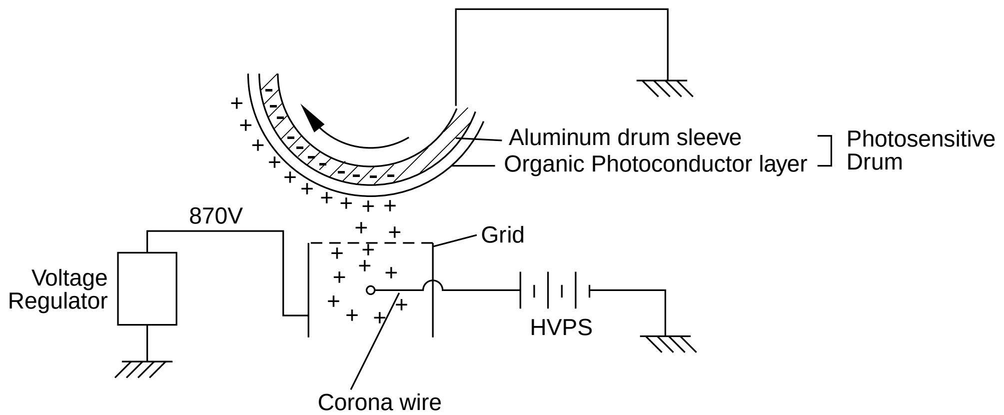


Fig. 3-34

The primary charge uses a corona wire, but since the drum is positively charged, only less than 1/10 of the usual quantity of ozone is generated compared with the negatively charged drum. The level of ozone expelled from the printer is therefore not harmful to the human body. Applicable safety standards have been complied with.

2.6.2 Exposure stage

After the drum is positively charged, it is exposed to the light emitted from the laser unit.

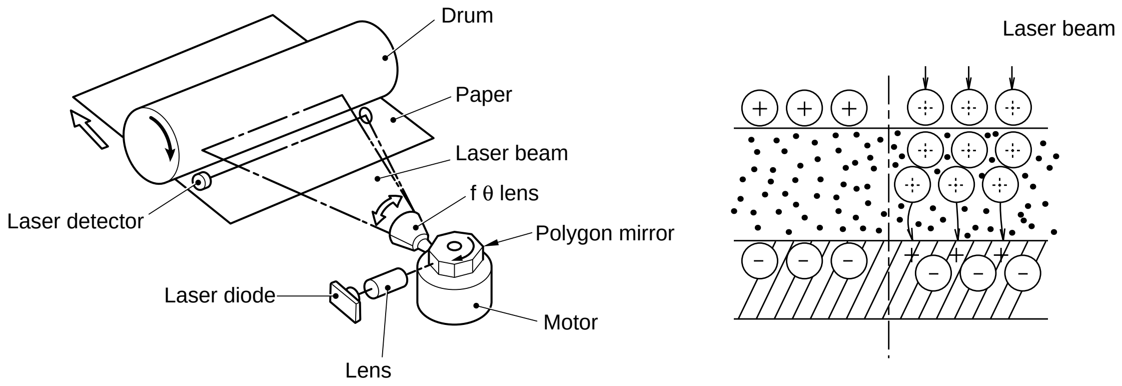
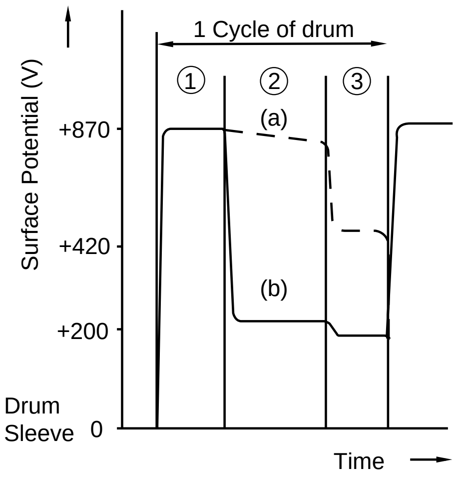


Fig. 3-35

The area exposed to the laser beam is the image to be printed. The surface potential of the exposed area is reduced, forming the electrostatic image to be printed.



① Primary charging

② Laser beam exposure and developing
(a) Unexposed area
(Non image area)
(b) Exposed area
(Image area)

③ Transfer the image to paper

Fig. 3-36

2.6.3 Developing

Developing causes the toner to be attracted to the electrostatic image on the drum so as to transform it into a visible image.

The developer consists of a non-magnetic toner. The development roller is made of conductive rubber and the supply roller (which is also made of conductive sponge) rotate against each other. The toner is charged and carried from the supply roller to the development roller. The toner adheres to the development roller and is conveyed to the photosensitive drum at an even thickness controlled by the blade. The toner is nipped between the development roller and the drum and developed onto the latent image on the drum. The electrostatic field between the drum and the development roller, which is DC-biased from the high-voltage power supply, creates the electrostatic potential to attract toner particles from the development roller to the latent image area on the drum surface.

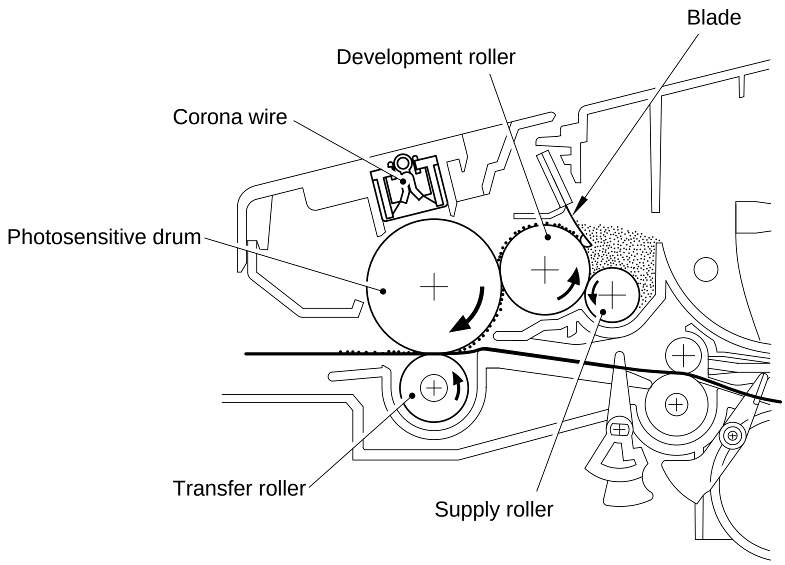


Fig. 3-37

2.6.4 Transfer

(1) Transfer process

After the drum has been charged and exposed, and has received a developed image, the toner formed is transferred onto the paper by applying a negative charge to the back of the paper. The negative charge applied to the paper causes the positively charged toner to leave the drum, and adhere to the paper. As a result, the image is visible on the paper.

(2) Cleaning process of transfer roller

If the toner is not transferred onto the paper perfectly it is possible that there may be residual toner on the drum which will adhere to the transfer roller. The transfer voltage changes to a positive voltage during non-printing rotation of the drum. Therefore the transfer roller is cleaned by returning the positively charged toner adhering to the transfer roller onto the photo-conductive drum.

2.6.5 Fixing stage

The image transferred to the paper by static electricity is fixed by heat and pressure when passing through the heat roller and the pressure roller in the fixing unit. The thermistor keeps the surface temperature of the heat roller constant by detecting the surface temperature of the heat roller and turning on or off the halogen heater lamp.

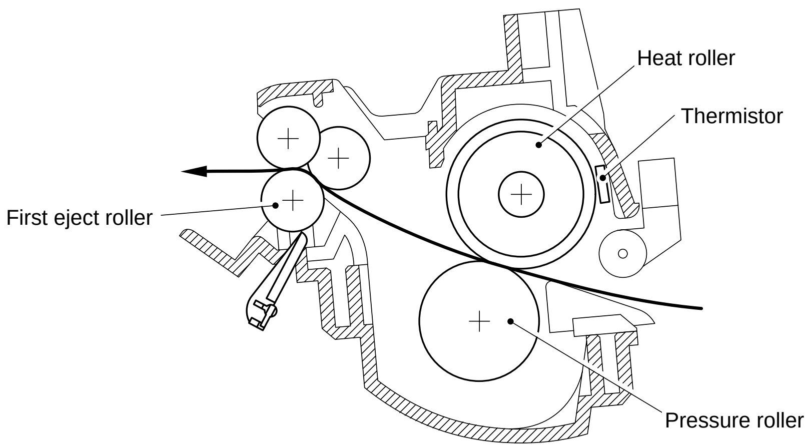


Fig. 3-38

CHAPTER4   DISASSEMBLY AND RE-ASSEMBLY

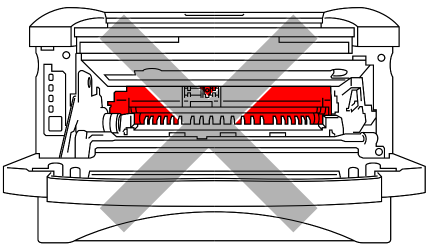
1.   SAFETY PRECAUTIONS

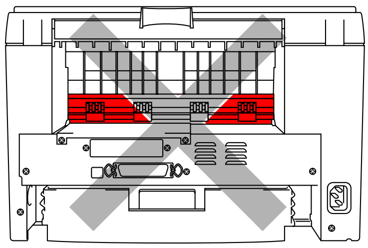
To avoid creating secondary problems by mishandling, follow the warnings and precautions below during maintenance work.

WARNING

(1) Always turn off the power switch and unplug the power cord from the power outlet before accessing any parts inside the printer.

(2) Some parts inside the printer are extremely hot immediately after the printer is used. When opening the front cover or rear cover to access any parts inside the printer, never touch the red colored parts shown in the following figures.





CAUTION:

(1) Be careful not to lose screws, washers, or other parts removed.

(2) Be sure to apply grease to the gears and applicable positions specified in this chapter.

(3) When using soldering irons or other heat-generating tools, take care not to accidentally damage parts such as wires, PCBs and covers.

(4) Before handling any PCBs, touch a metal portion of the equipment to discharge any static electricity charge on your body, or the electronic parts or components may be damaged.

(5) When transporting PCBs, be sure to wrap them in the correct protective packaging.

(6) Be sure to replace self-tapping screws correctly, if removed. Unless otherwise specified, tighten screws to the following torque values.

TAPTITE, BIND or CUP B
M3: 70N • cm
M4: 80N • cm

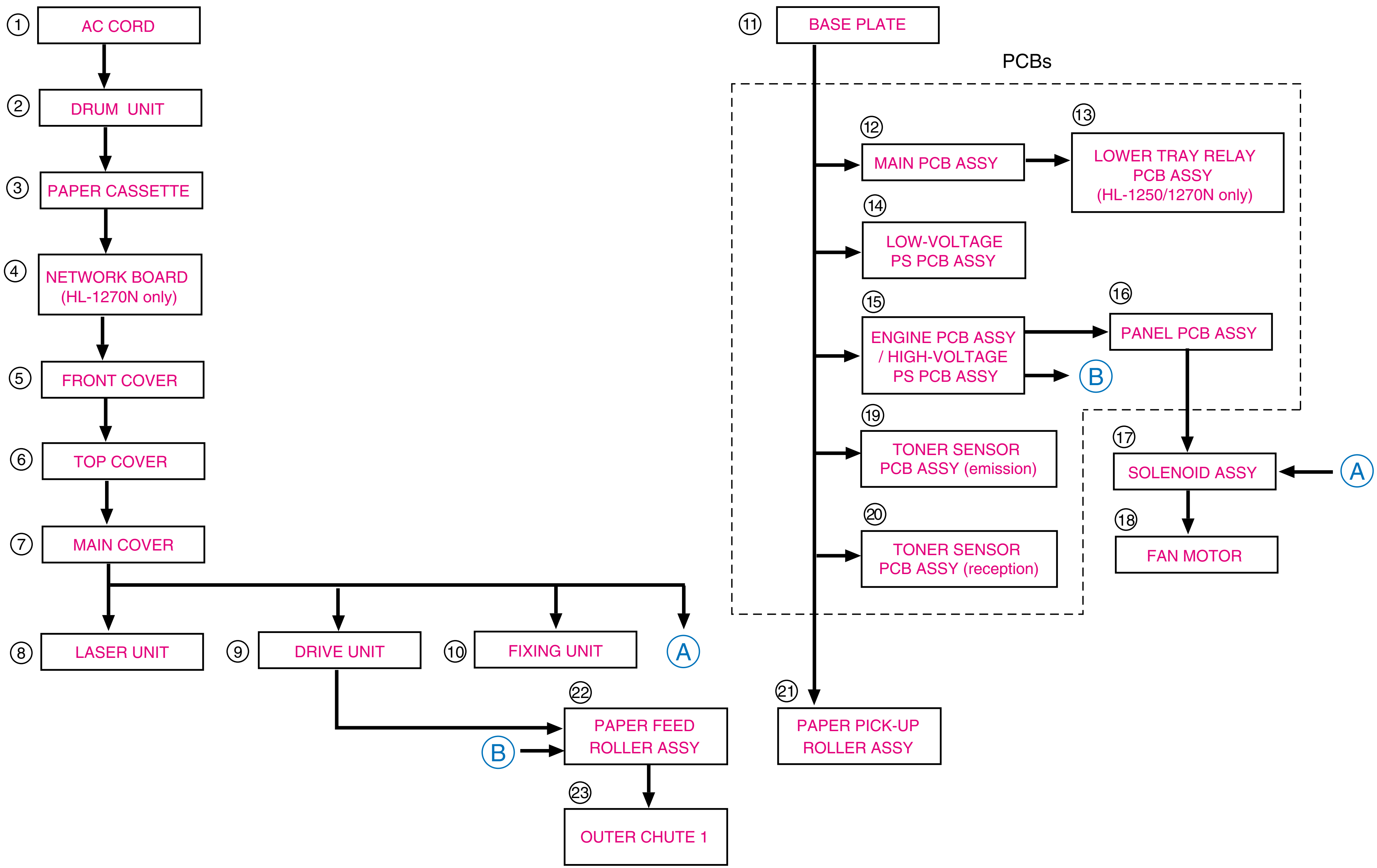
TAPTITE, CUP S
M3: 80N • cm

SCREW
M3: 70N • cm
M4: 80N • cm

(7) When connecting or disconnecting cable connectors, hold the connector body, not the cables. If the connector has a lock, release the connector lock first to release it.

(8) After a repair, check not only the repaired portion but also all connectors. Also check that other related portions are functioning properly before operational checks.

2. DISASSEMBLY FLOW



3. DISASSEMBLY PROCEDURE

3.1 AC Cord

(1) Disconnect the AC cord from the printer AC inlet.

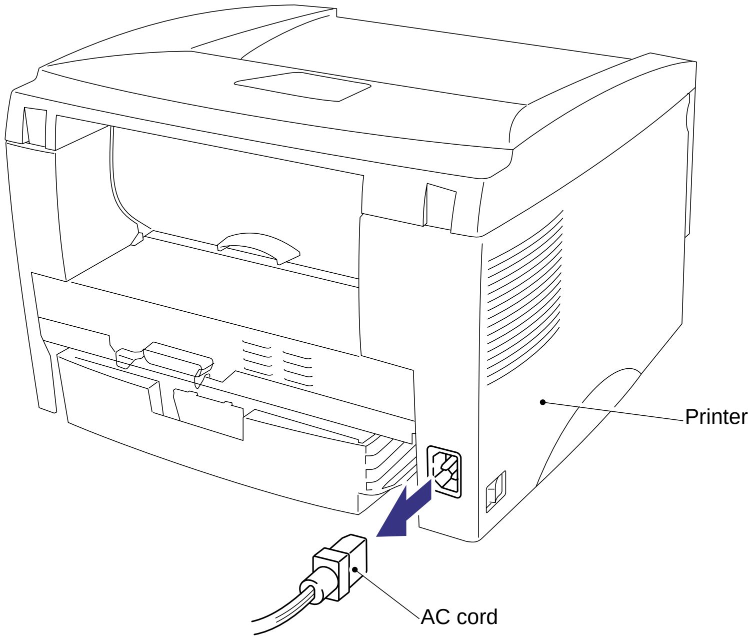


Fig. 4-1

3.2 Drum Unit

(1) Open the front cover and remove the drum unit from the printer.

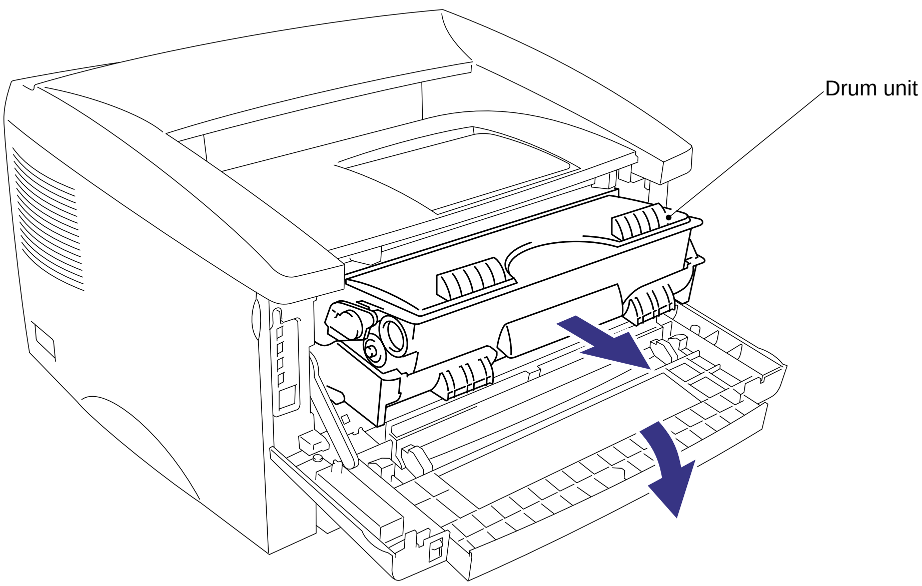


Fig. 4-2

3.3 Paper Cassette

(1) Close the front cover, pull out the paper cassette from the printer and remove the paper from the cassette.

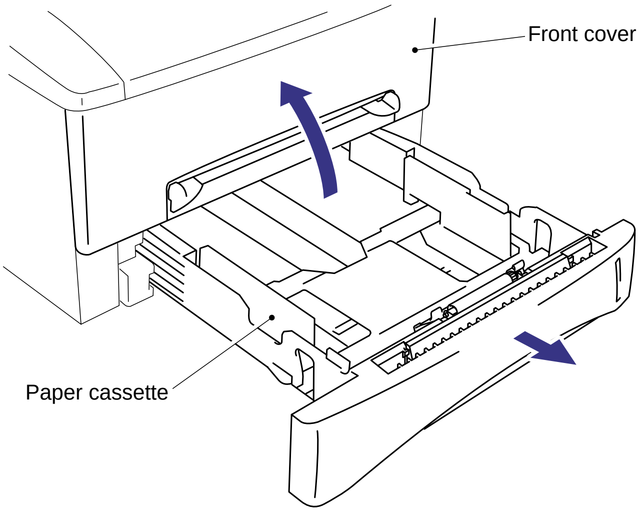


Fig. 4-3

(2) Remove the separation pad holder ASSY by pulling it upwards, then remove the separation pad spring from the paper cassette.

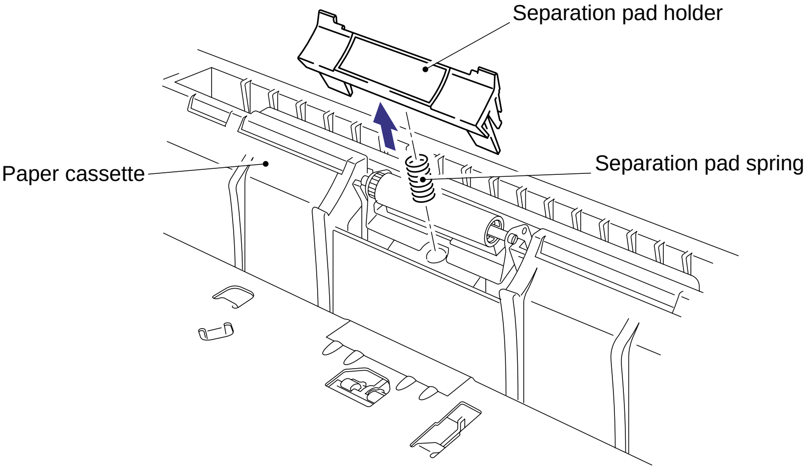


Fig. 4-4

NOTE:

When replacing/re-assembling the separation pad holder, remove the old grease and apply a suitable amount of grease referring to the figure below;

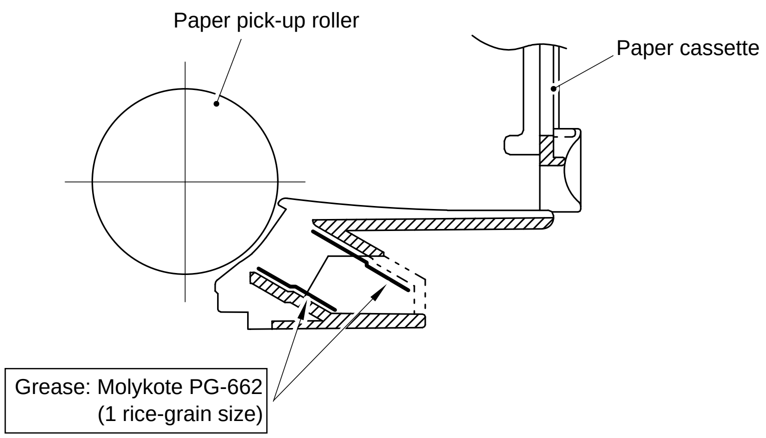


Fig. 4-5

(3) Turn the paper cassette upside down, then remove the cassette cover film by peeling it carefully from the underside of the cassette.

(4) Remove the M3x8 Taptite screw and remove the paper cassette cover from the front of the cassette.

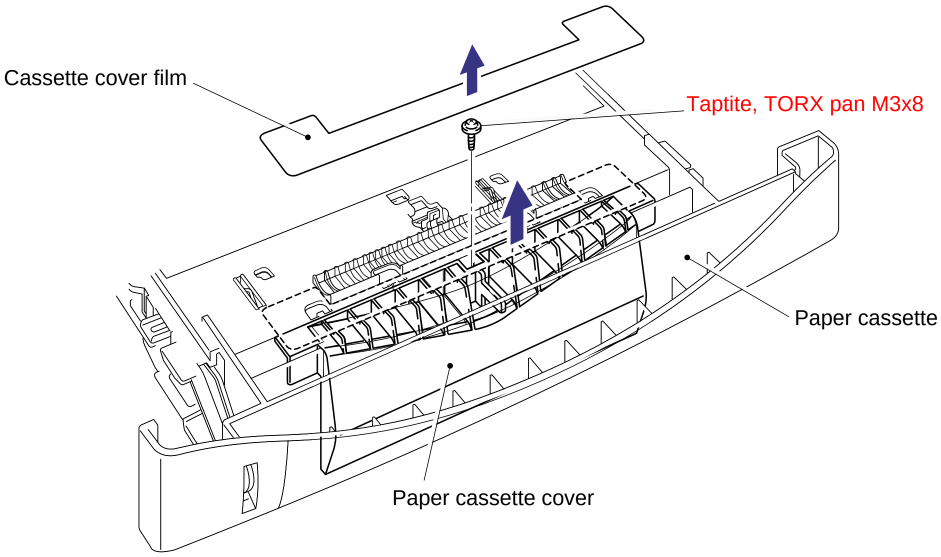


Fig. 4-6

NOTE:

- *'The cover film must not be reused after it has been removed. Always replace it with a new one.*
- *The screw securing the paper cassette cover indicated RED in the figure above is very special. When disassembling/re-assembling the screw, you need a special screw driver. Refer to the parts reference list.*

(5) Keeping the paper cassette upside down, release the pressure roller holder assembly from the cassette by releasing the metal mounting plate from the plastic retaining boss. Use a flat screwdriver to press the metal plate forwards until it clears the boss and then remove the pressure roller holder assembly downwards from the cassette.

(6) Remove the cassette pressure roller from the assembly, then remove the pressure roller shaft from the pressure roller.

(7) Remove the sponge holder ASSY from the holder. The two sponge holder springs will also come off.

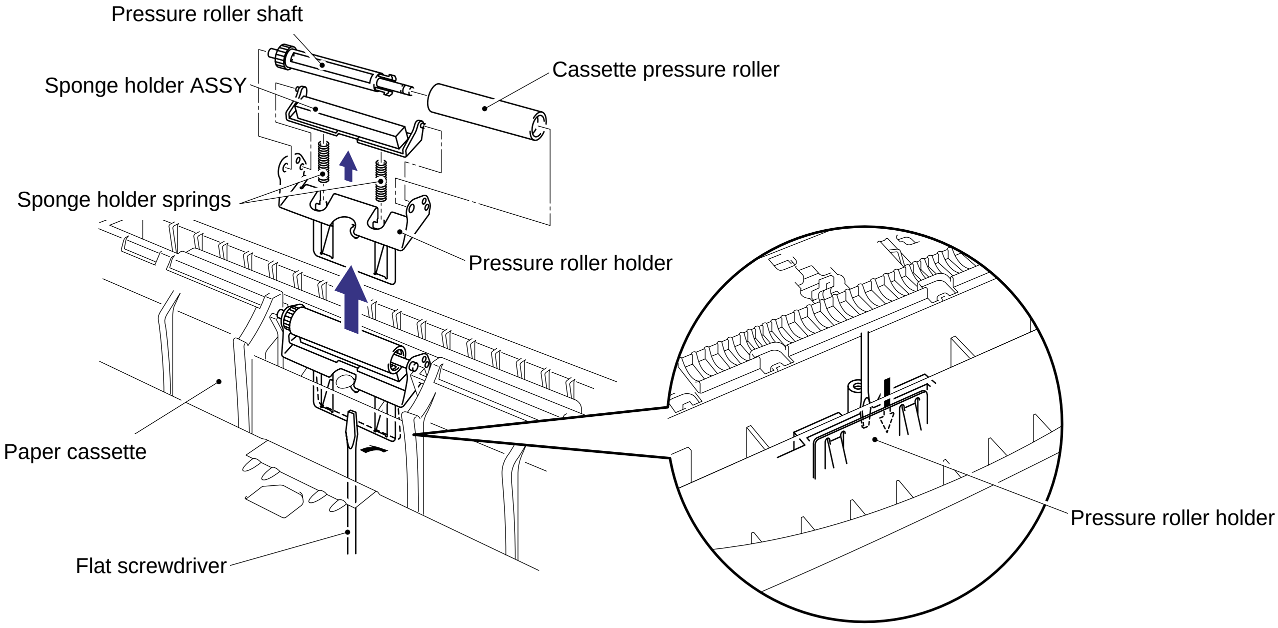


Fig. 4-7

(8) Keeping the paper cassette upside down, remove the two M2.6x5 Taptite screws.

(9) Unhook the catches of each side guide, then press the lock lever towards the front of the cassette to release the pressure plate.

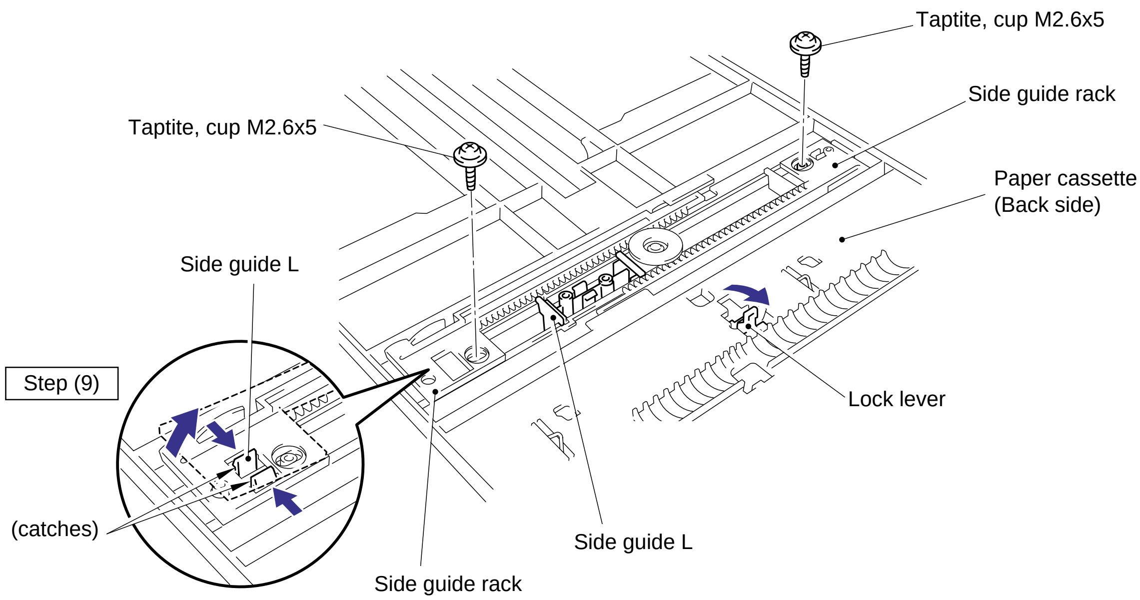


Fig. 4-8

(10) Turn the cassette the correct way up and slide the two paper guides to the center of the cassette.

(11) Remove the side guides Left and Right from the paper cassette.

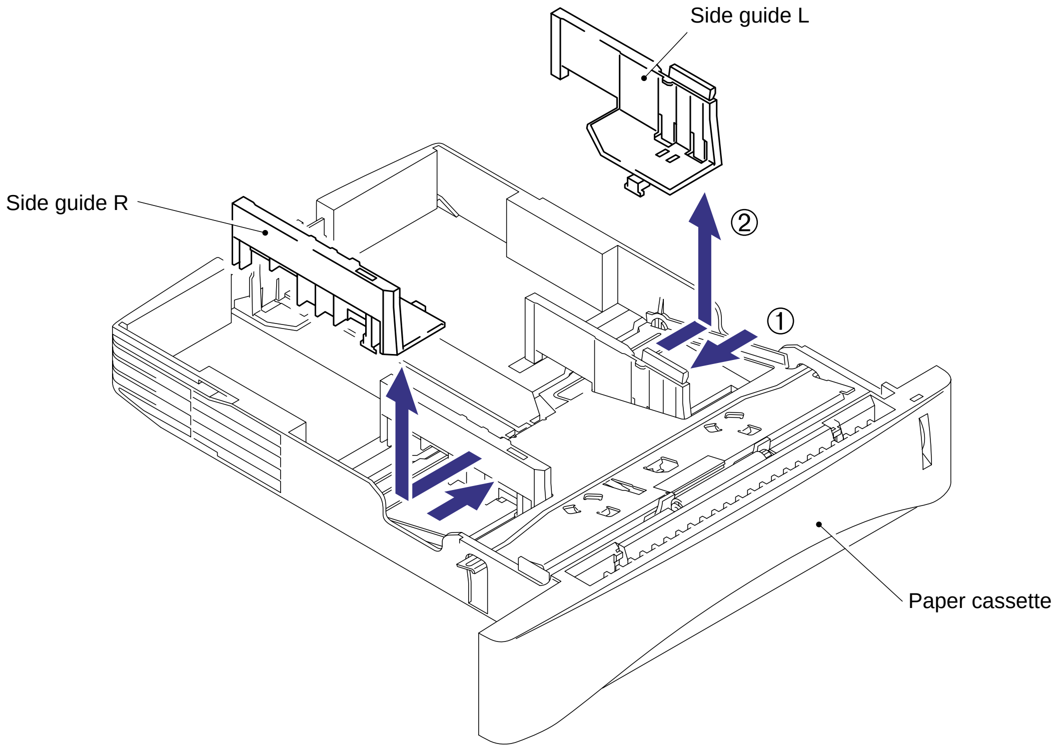


Fig. 4-9

(12) Unhook the two catches (A) of the pressure plate while pulling the plastic frame outwards, then unhook the other two catches (B) of the plate while pulling the plastic frame outwards to remove the pressure plate ASSY.

(13) Unhook the pressure plate spring from the plastic hook to remove the two pressure plate springs.

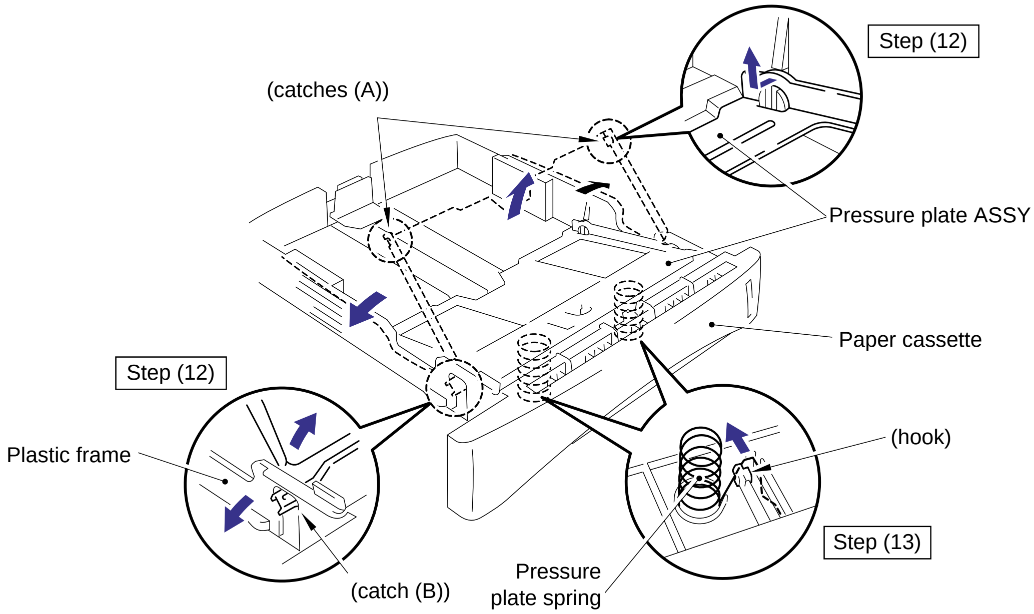


Fig. 4-10

NOTE:
When re-assembling the pressure plate ASSY, ensure that the paper indicator arm is under the pressure plate.

> **CAUTION:**
> *When unhooking the catches to remove the pressure plate, do not bend the pressure plate, gently ease the plastic cover. If the pressure plate is deformed, paper feeding problems may occur.*

(14) Remove the release lever extension spring.

(15) Unhook the two catches and rotate the lock lever to remove it downwards from the cassette.

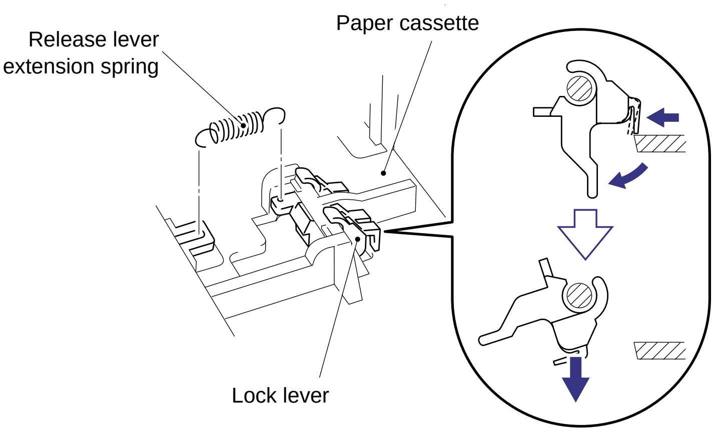


Fig. 4-11

NOTE:
When re-assembling the lock lever, insert it upwards from underneath the cassette and rotate it until the two catches lock into place..

(16) Slide the rear paper guide fully forwards in the cassette and remove it from the slot.

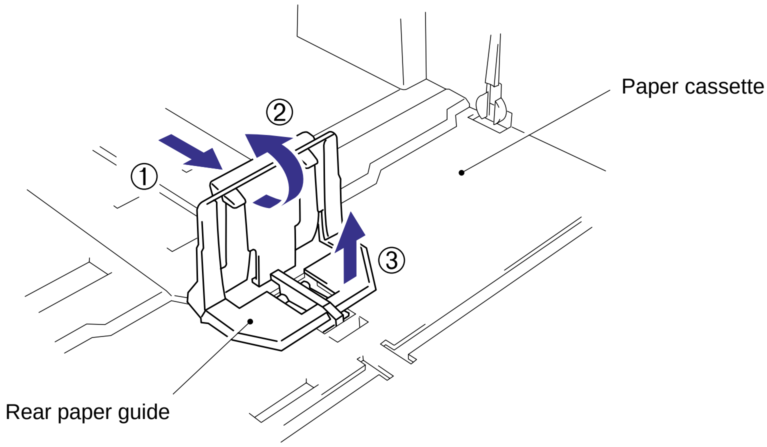


Fig. 4-12

(17) Turn the cassette upside down and remove the one M3x8 Taptite screw to remove the side guide gear. Then remove the one friction spring.

(18) Remove the two side guide racks.

(19) Remove the paper indicator.

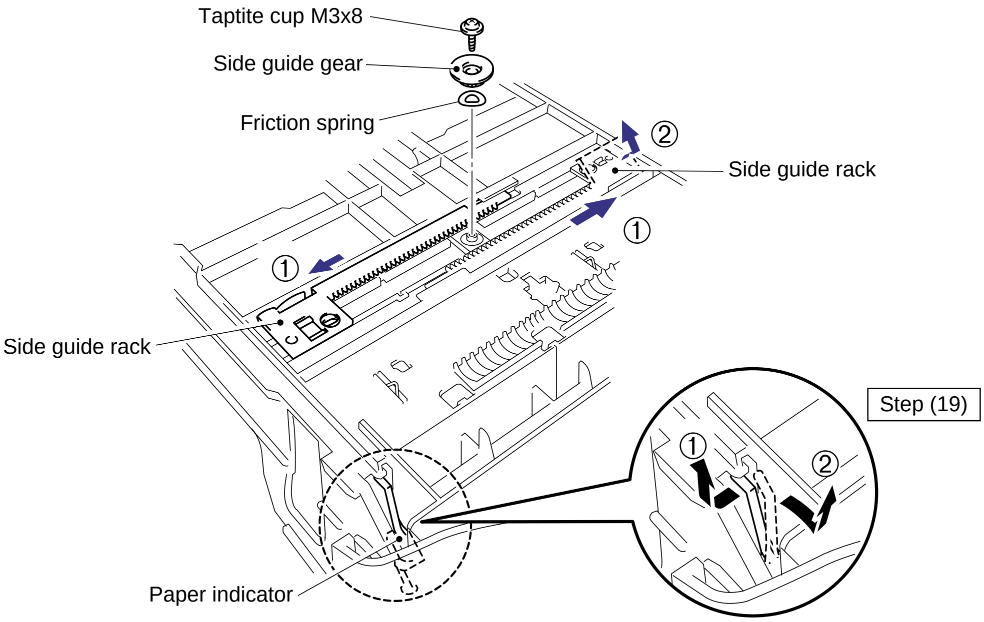


Fig. 4-13

NOTE:

- *When re-assembling the side guide racks, they should both be aligned so that the wide end of the racks are in line with the inside edge of the paper guide release slots in the cassette before refitting the spring and gear.*
- *When replacing/re-assembling the paper cassette, remove the old grease and apply a suitable amount of grease onto both sides of the paper cassette referring to the figure below;*

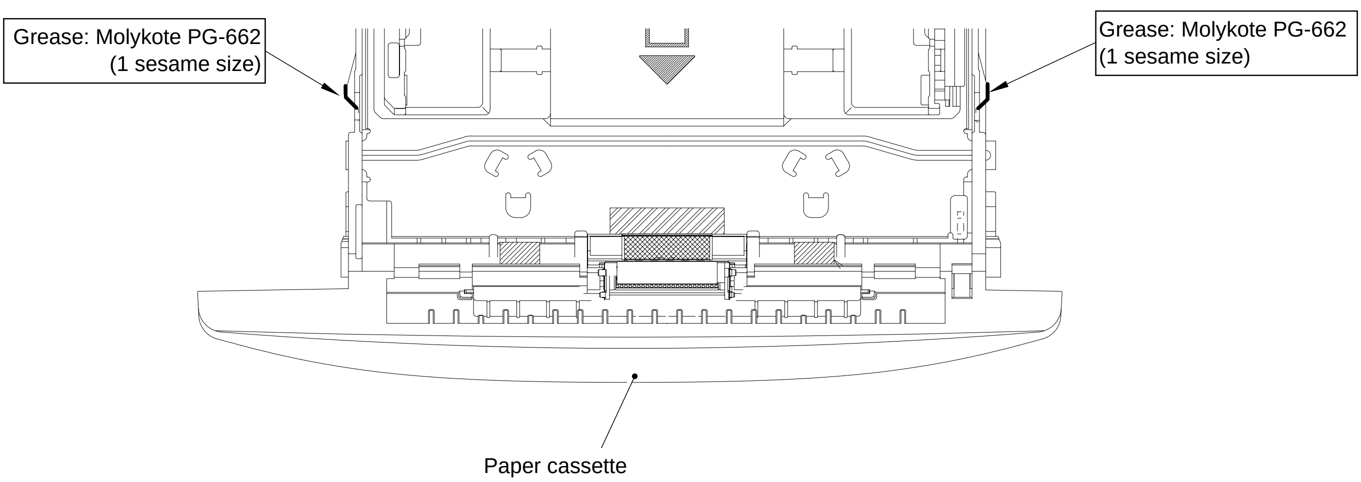


Fig. 4-14

3.4 Network Board (for HL-1270N only)

(1) Open the rear cover.

(2) Remove the two M3x8 Taptite screws to remove the access cover.

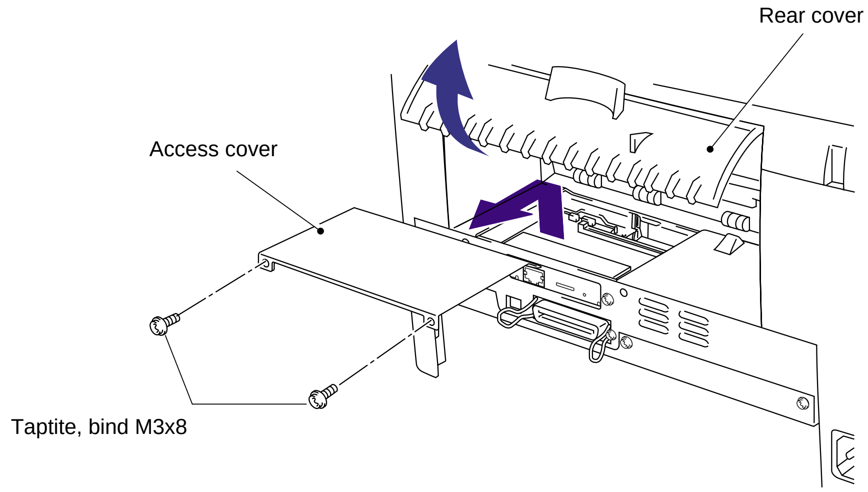


Fig. 4-15

(3) Remove the two M3x6 Taptite screws securing the network board.

(4) Disconnect the connector connected with the main PCB and remove the network board.

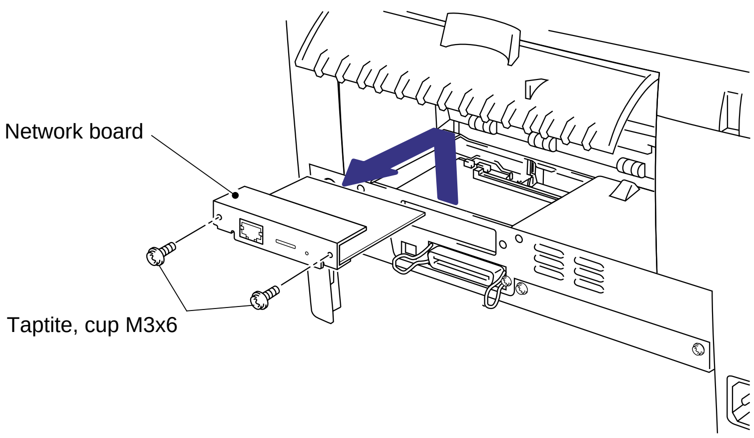


Fig. 4-16

3.5 Front Cover

(1) Open the front cover.

(2) Remove the four M3x8 Taptite screws from the main cover.

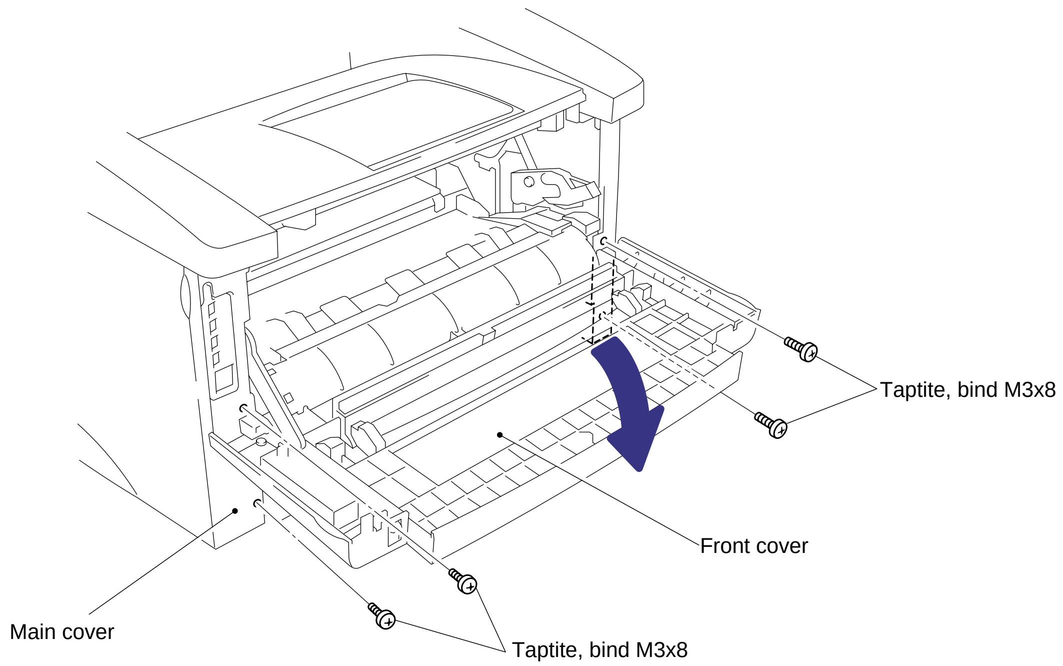


Fig. 4-17

(3) Position the front cover at the angle of 45 degrees and release the bosses at the right and left hand sides and the link at the left hand side.

(4) Remove the front cover.

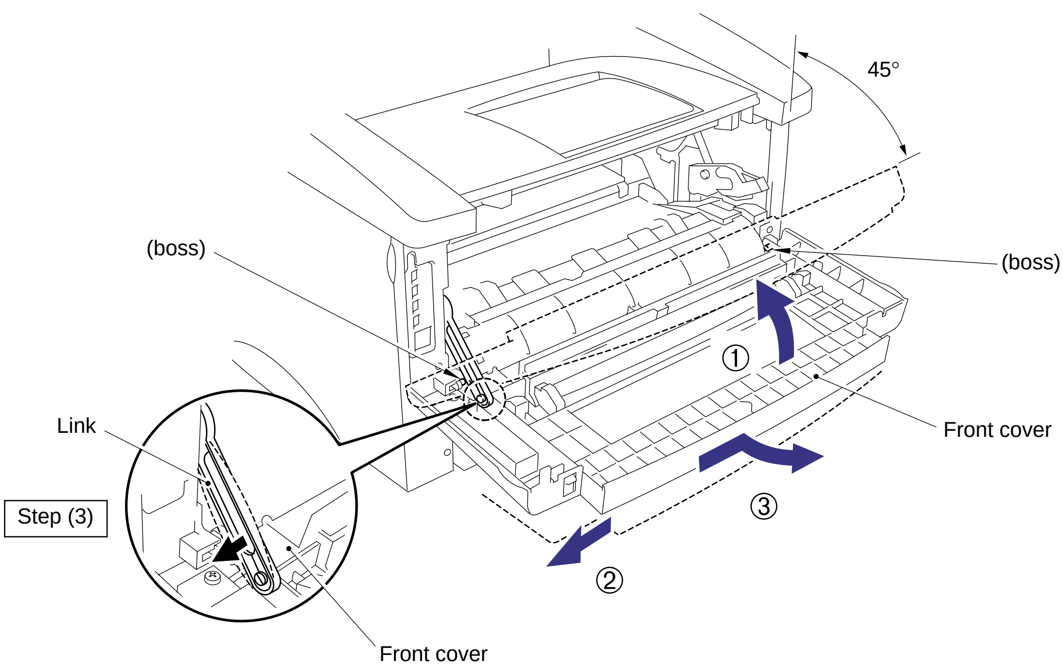


Fig. 4-18

3.6 Top Cover

(1) Remove the two M3x10 Taptite screws securing the top cover.

(2) Release the hooks on either side of the top cover from the bosses on the main cover by pulling the top cover forwards.

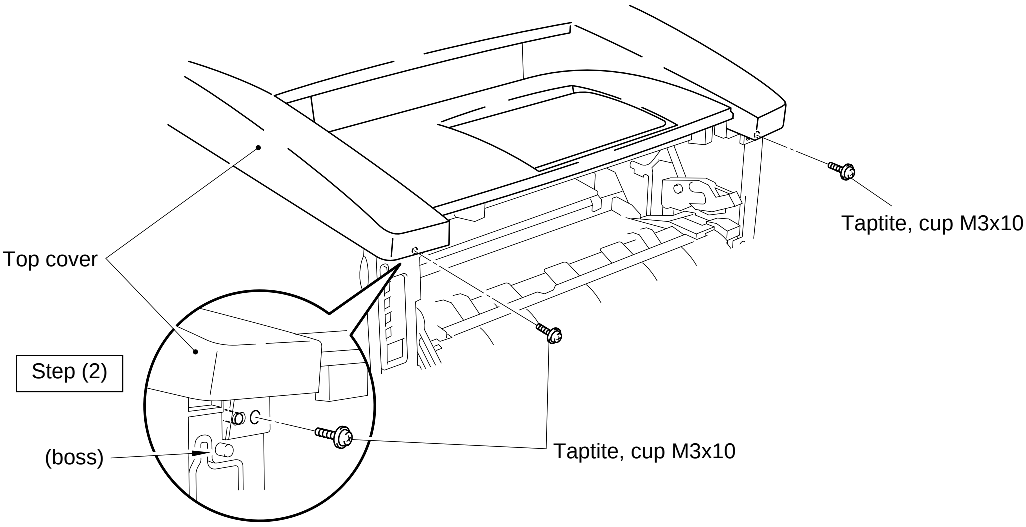


Fig. 4-19

(3) Open the rear cover, then release the hooks (A) at the right and left hand sides of the top cover while pushing them towards the side of the printer from the rear.

(4) Lift up the top cover and release the hooks (B) at the right and left hand sides of the top cover to remove the top cover.

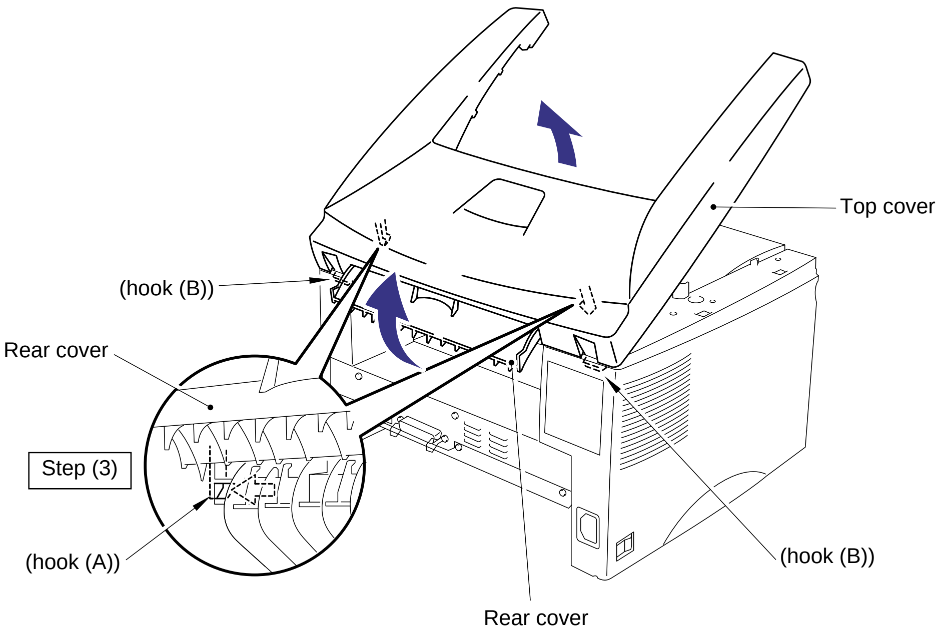


Fig. 4-20

(5) Turn the top cover upside down and remove the second eject roller ASSY by lifting the middle of the roller upwards until the roller releases from the cover.

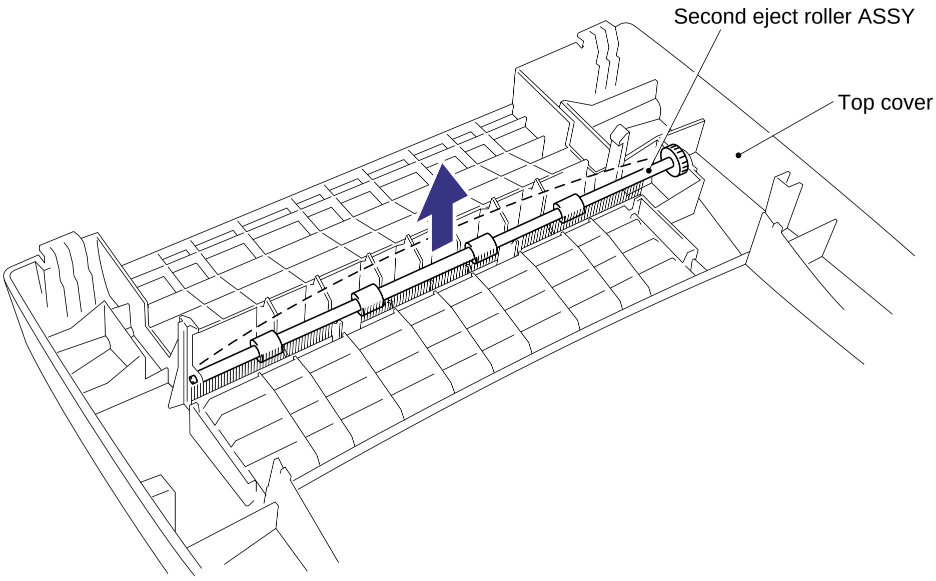


Fig. 4-21

3.7 Main Cover

(1) Remove the two M3x8 Taptite screws from the rear of the main cover.

(2) Release the hooks at the right and left hand top sides of the printer, then, while pulling the cover outwards to clear the power socket and switch, lift up the main cover to remove it complete with the rear cover.

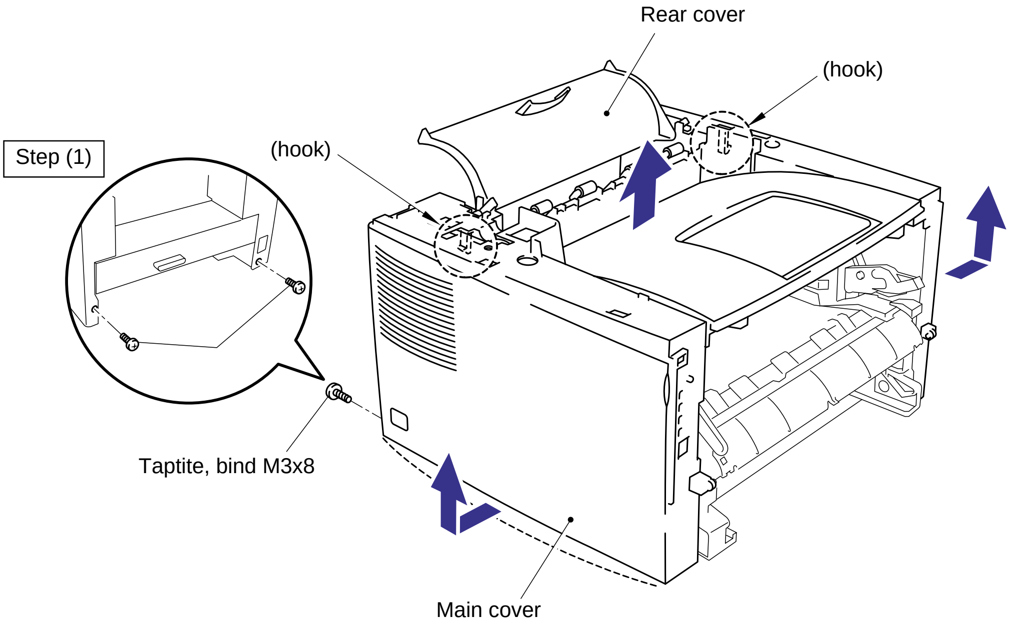


Fig. 4-22

(3) Bend the tray extension flap upwards slightly to remove the tray extension flap.

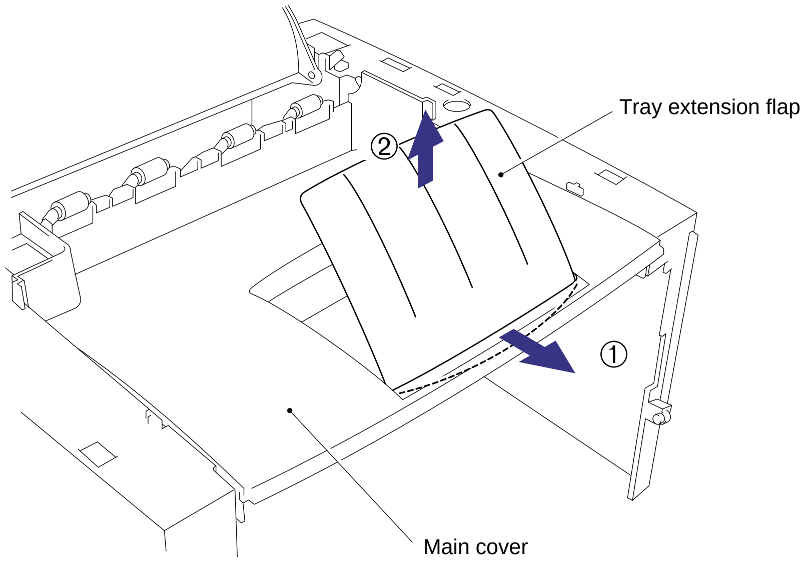


Fig. 4-23

(4) Release the rear cover springs Left and Right from the hooks on the main cover.

(5) Remove the rear cover complete with the rear cover springs Left and Right from the main cover.

(6) Remove the four pinch rollers and four pinch roller springs by moving them to the vertical and then removing them by lifting them upwards.

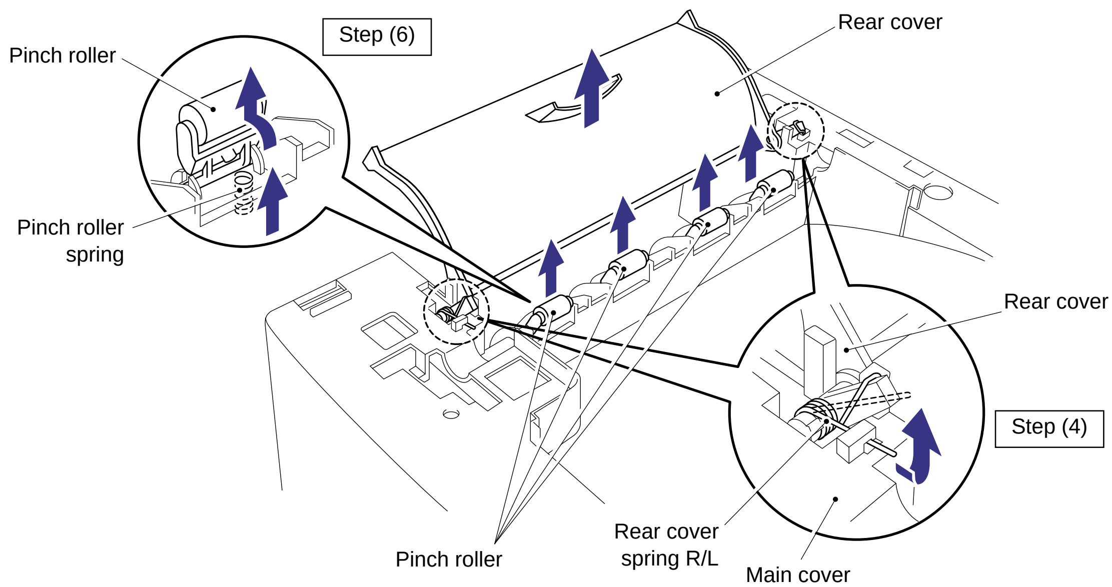


Fig. 4-24

3.8 Laser Unit

(1) Remove the three M3x16 Taptite screws.

(2) Push the P harness cover to the right to release it from the hook and remove the P harness cover.

(3) Disconnect the LD harness and the polygon motor connector.

(4) Taking care not to touch the lens and mirror, remove the laser unit.

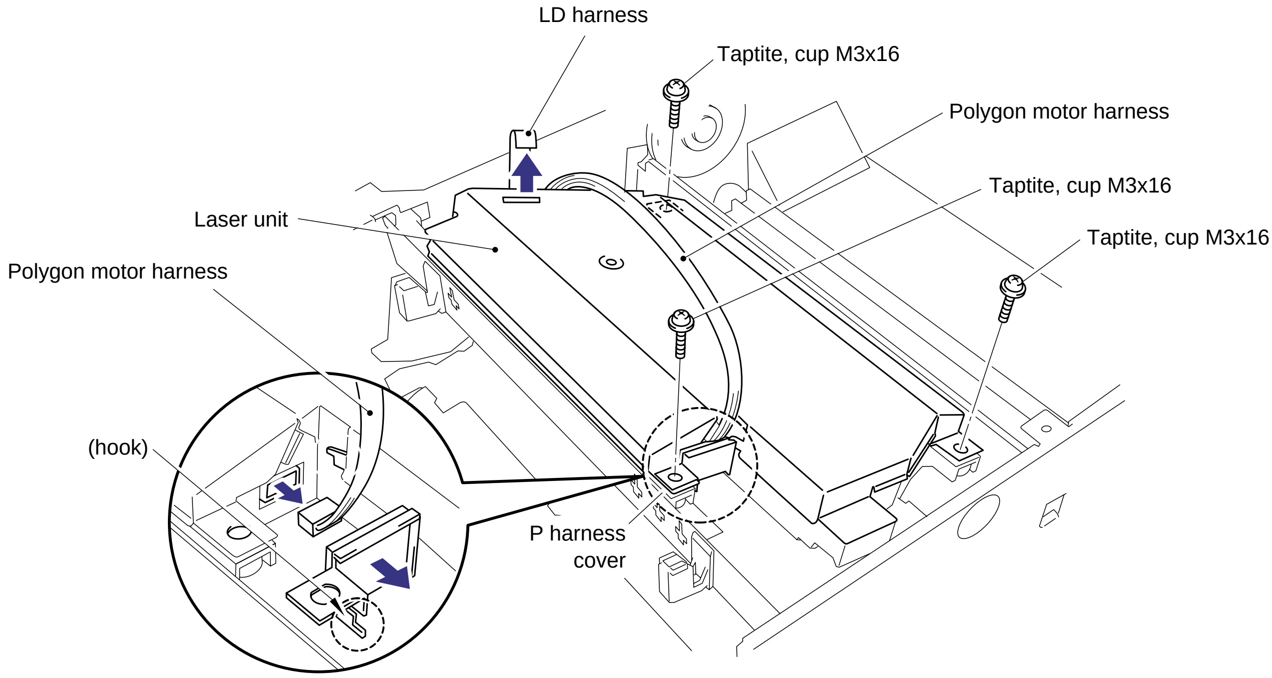


Fig. 4-25

CAUTION:

- *Never touch the reflect mirror and lens inside the laser unit. If there is any dirt or dust on the mirror or lens, blow it off using an air gun.*
- *Never touch the scanner window on the printer body. If there is any dirt or dust on the window, blow it off using an air gun. If cleaning the underside of the scanner window, wipe off dirt or dust with soft clean paper. Refer to subsection 3.3 'Cleaning the Scanner Window' in CHAPTER 5.*

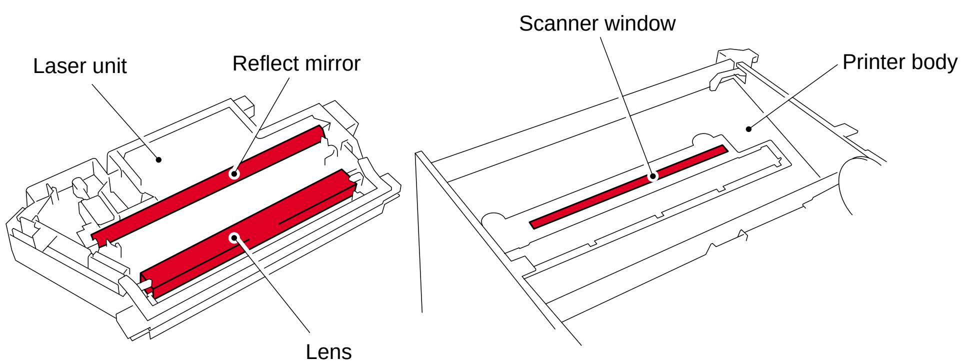


Fig. 4-26

3.9 Drive Unit

(1) Place the printer body carefully on its right hand side so that the drive unit is at the top.

(2) Remove the five M3x6 Taptite screws securing the gear plate.

(3) Disconnect the heater harness connector and release the panel PCB harness from the hooks.

(4) Carefully lift the drive unit and while supporting the PCB, disconnect the main motor connector.

(5) Remove the drive unit.

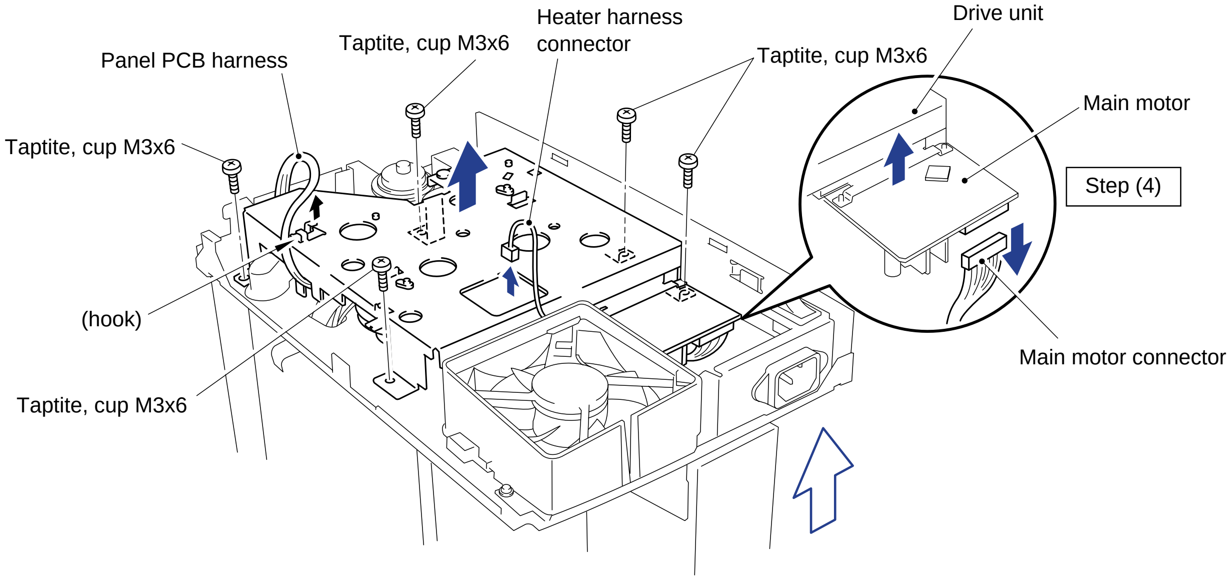


Fig. 4-27

(6) Remove the four M3x6 Taptite screws to remove the main motor ASSY from the drive unit.

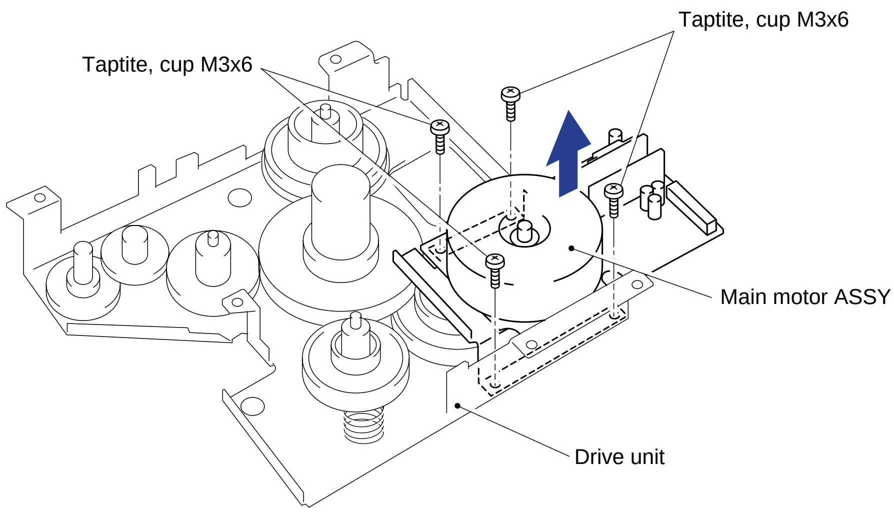


Fig. 4-28

NOTE:

When replacing/re-assembling the main motor, remove the old grease and apply a suitable amount of grease referring to the figure below;

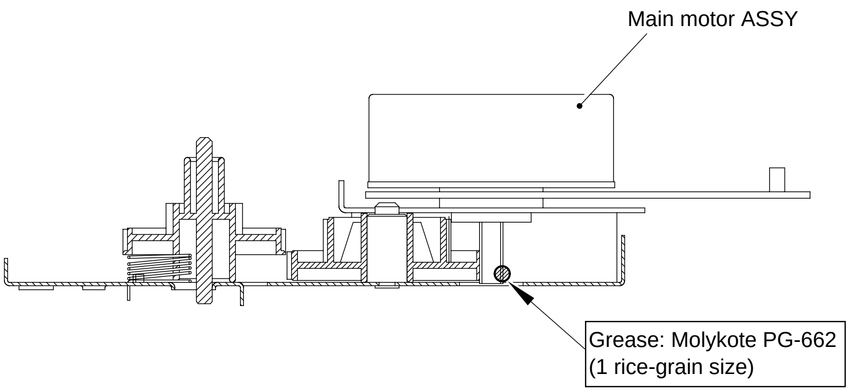


Fig. 4-29

(7) Remove the development joint complete with the joint spring, then remove the link.

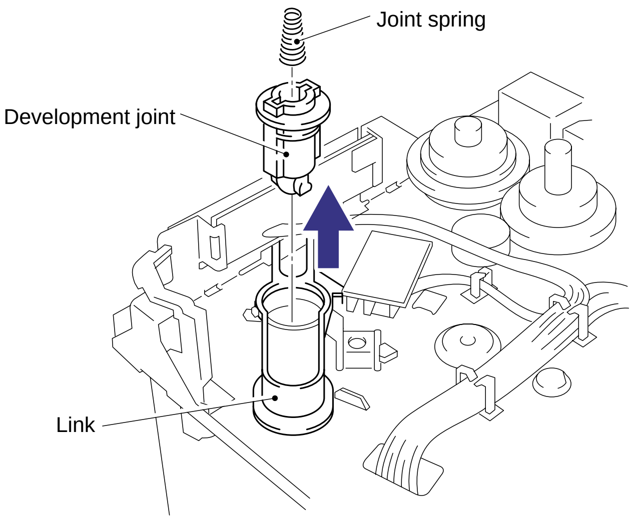


Fig. 4-30

3.10 Fixing Unit

(1) Place the main frame on its base so that the rear side is facing you.

(2) Press the two hooks inwards to remove gear 59.

(3) Disconnect the two connectors of the heater harness and release the harness from the hooks on the top of the fixing unit.

(4) Remove the one M3x8 Taptite screw and two shoulder screws securing the fixing unit, taking care not to lose the contact spring fitted to the front left hand.

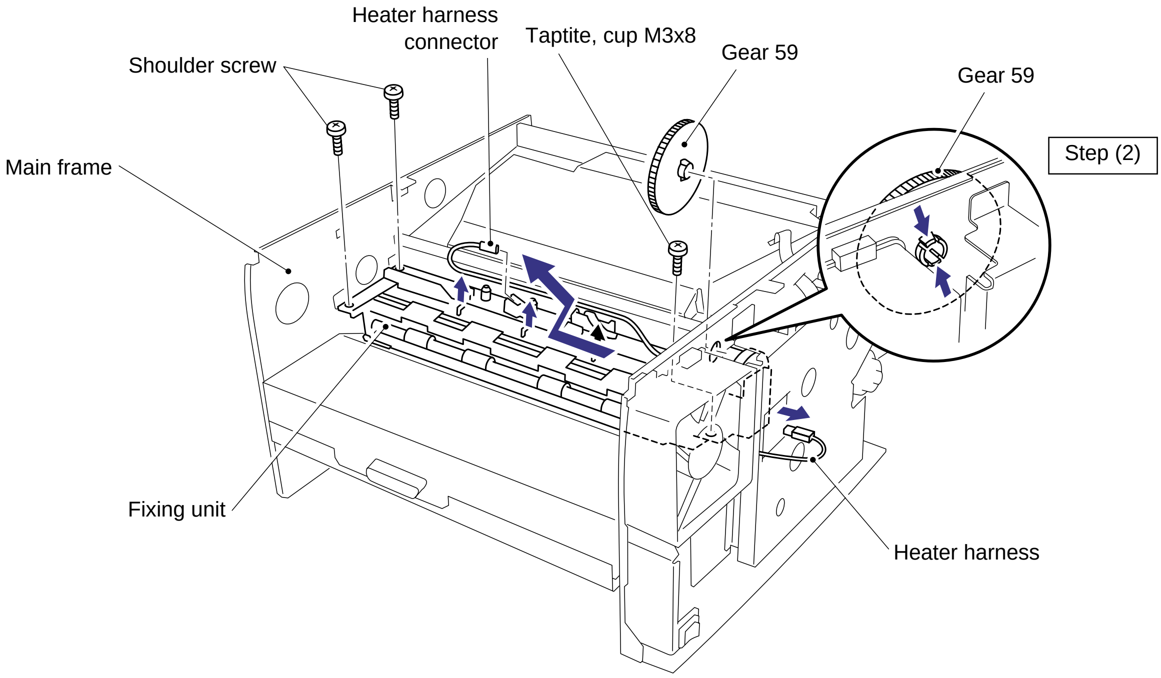


Fig. 4-31

NOTE:
When re-assembling the fixing unit, ensure you do not forget to refit gear 59.

(5) Lift up the fixing unit and move it toward you and to the left to allow the drive gear to clear the frame and then disconnect the thermistor connector from the engine PCB.

(6) Remove the fixing unit from the main frame.

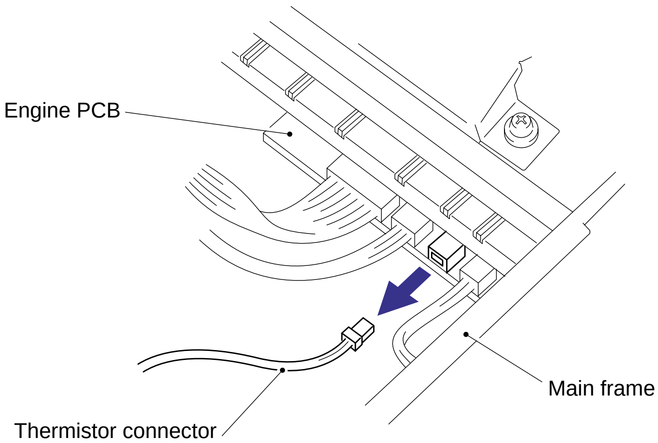


Fig. 4-32

NOTE:
When re-assembling the fixing unit, align the fixing unit frame at the drive unit side into the concave part of the main frame.

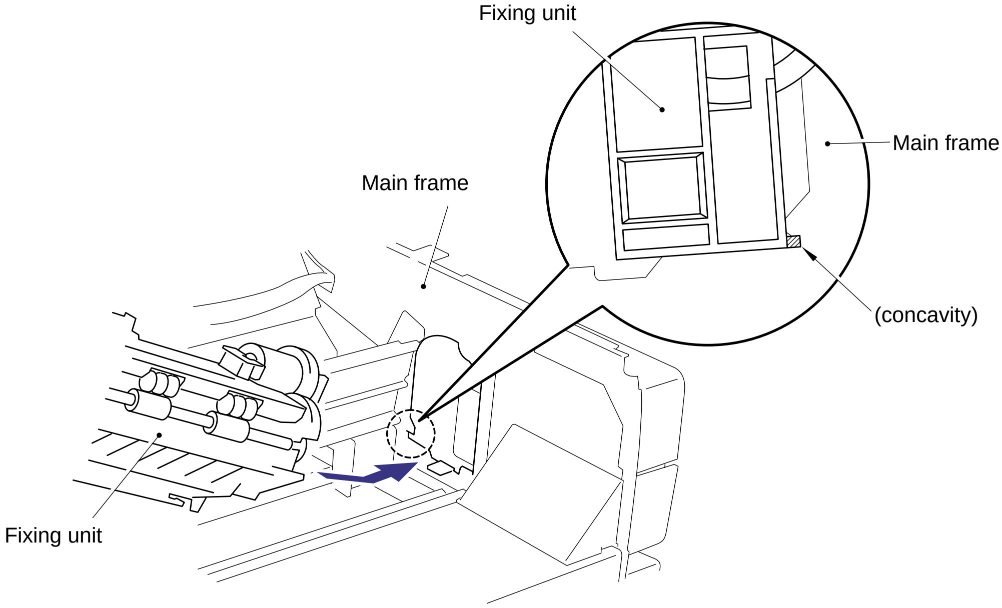


Fig. 4-33

(7) Remove the M3x10 screw to remove the star wheel holder ASSY from the fixing unit by lifting the left hand end of the assembly slightly and then moving the assembly to the right to release the right hand end from the fixing unit frame.

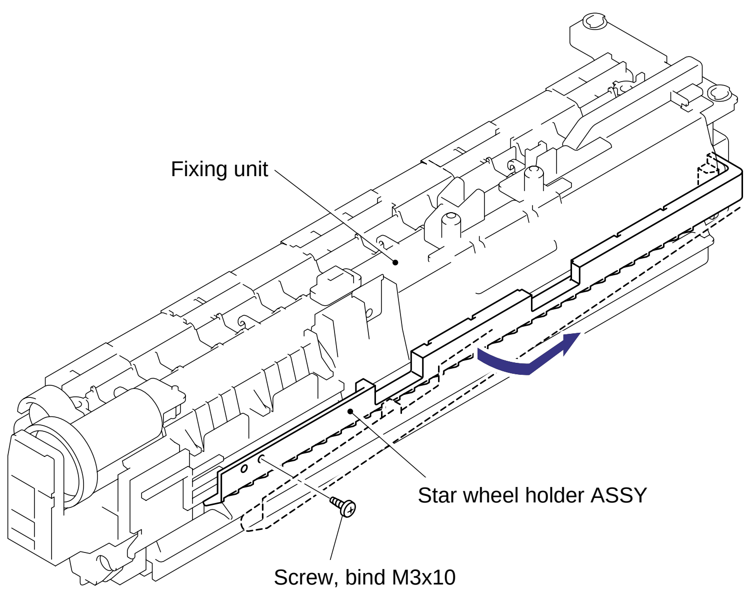


Fig. 4-34

(8) Remove the two M3x20 Taptite screws from the top of the fixing unit frame.

(9) Release the thermistor harness from the hooks.

(10) Release the two hooks at the right and left sides securing the fixing unit cover to the fixing unit frame.

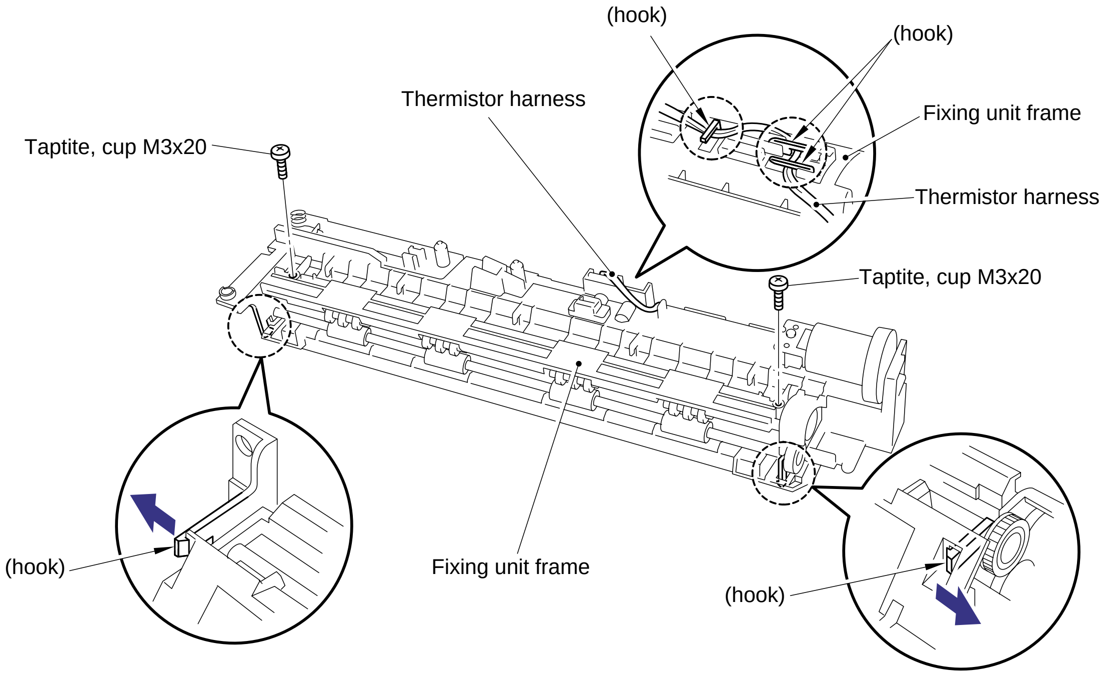


Fig. 4-35

(11) Remove the fixing unit cover from the fixing unit frame.

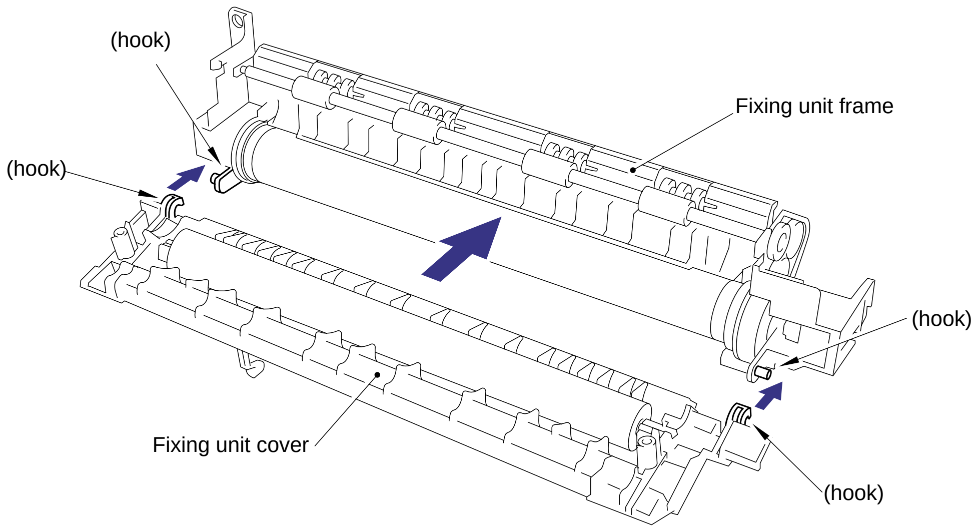


Fig. 4-36

(12) Remove the one M3x10 Taptite screw securing the halogen lamp connector plate at the drive unit side of the fixing unit frame and then loosen the M3x6 screw at the other side.

(13) Lift the right hand end of the heat roller and remove the halogen heater lamp from the heat roller.

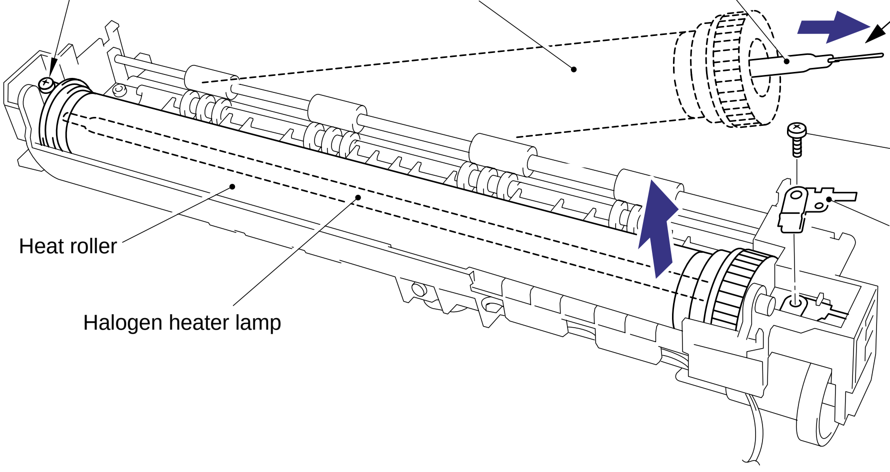


Fig. 4-37

NOTE:

When re-assembling the halogen heater lamp, ensure that the direction of the halogen heater lamp is correct referring to the figure above.

CAUTION:

- *Never touch the surface of the halogen heater lamp.*
- *When securing the screw to assemble the halogen lamp connector plate, ensure you use the plastic jig as shown in the figure below to avoid damaging the edge of the halogen heater lamp.*

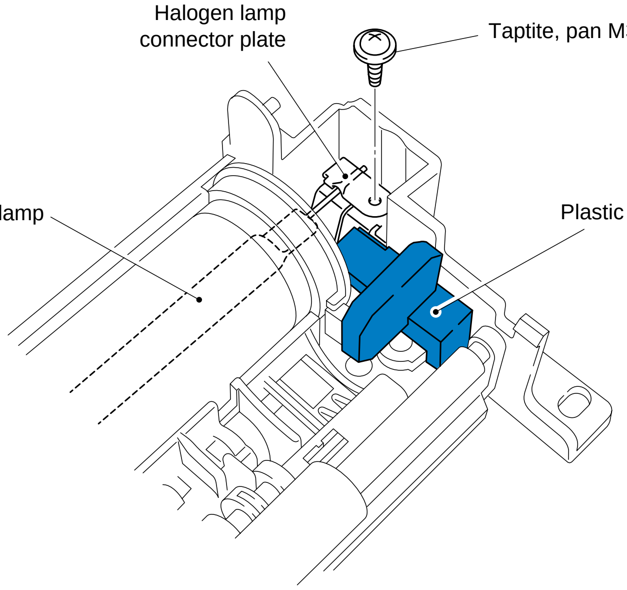


Fig. 4-38

(14) Lift and remove the heat roller. The heat roller gear will also come off.

(15) Remove the heat roller bearing from the left hand end of the heat roller. To remove the bearing at the gear side, first remove the two washers, then remove the bearing.

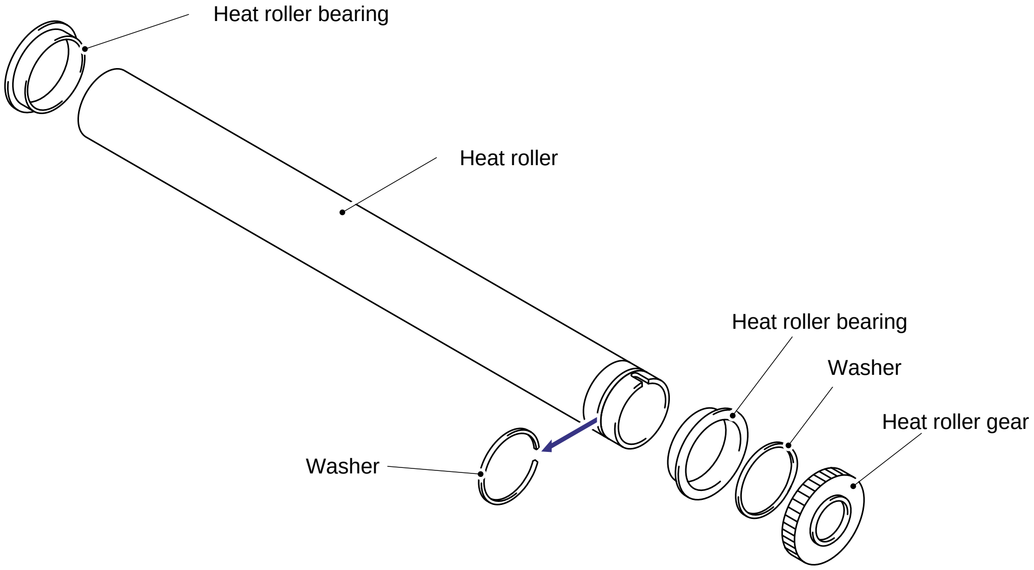


Fig. 4-39

> **CAUTION:**
> *Never touch the surface of the heat roller.*

NOTE:

- *When re-assembling the heat roller to the fixing unit frame, place the two projections at the right hand side of the roller onto the bosses on the frame as shown in the figure below.*

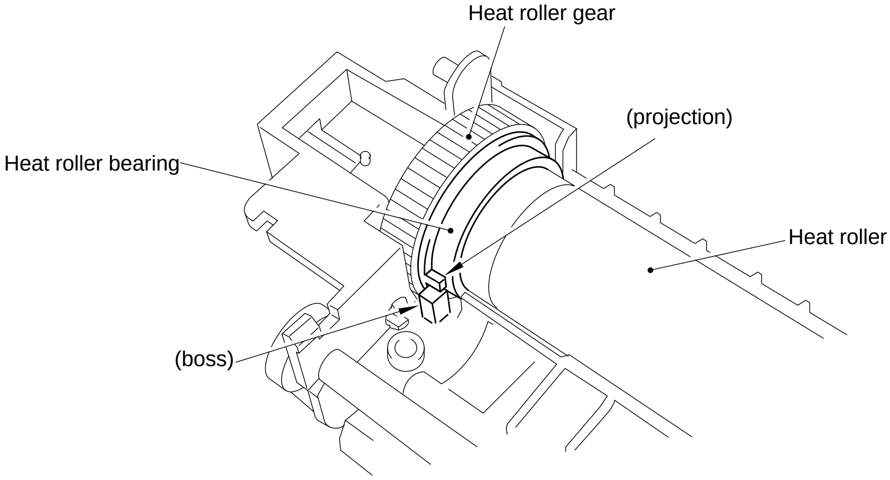


Fig. 4-40

- *When re-assembling the heat roller bearing which is assembled at the heat roller gear side, fix the bearing onto the heat roller so that the embossment whose thickness is 0.5mm is at the top.*

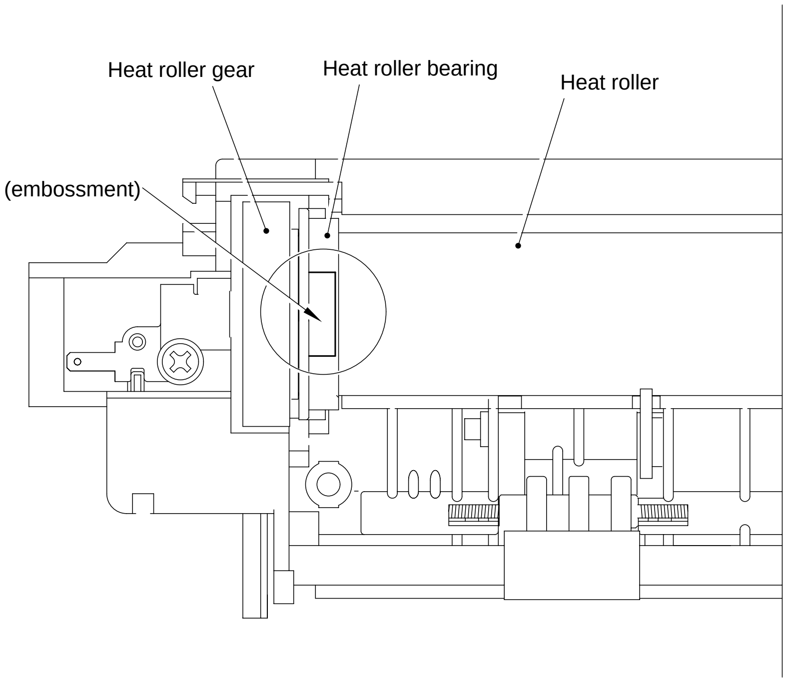


Fig. 4-41

- *When re-assembling the heat roller to the fixing unit frame, ensure you do not damage the heat roller with the four hooks on the fixing unit frame.*

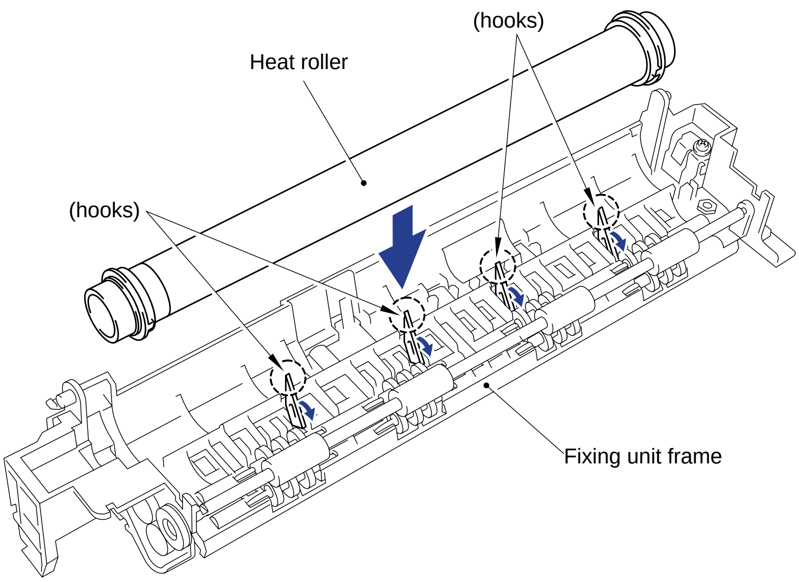


Fig. 4-42

(16) Remove the heat roller cleaner complete with the cleaner spring from the fixing unit frame by lifting it upwards until the spring releases from the frame.

(17) Remove the cleaner spring from the heat roller cleaner.

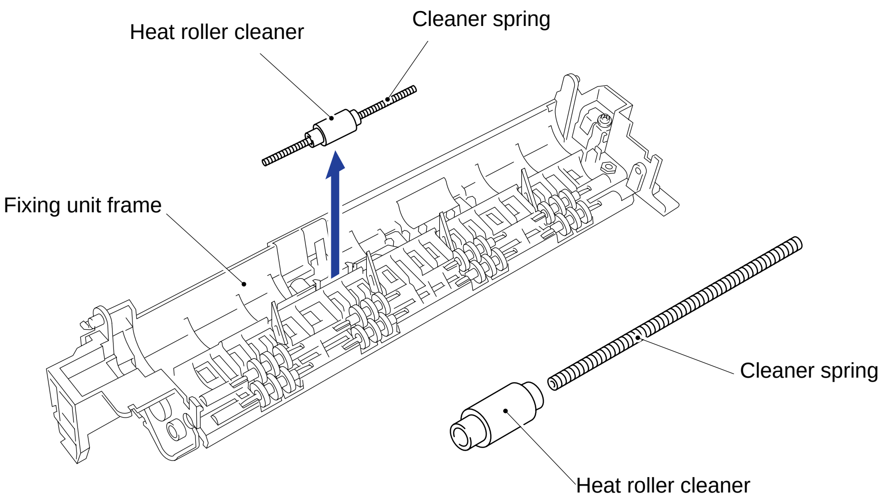


Fig. 4-43

NOTE:

- *When re-assembling the heat roller cleaner complete with the cleaner spring onto the fixing unit frame, ensure the direction of the roller is correct referring to the figure above.*
- *Ensure also that the spring is seated correctly in the locating channel and does not protrude from either end.*

(18) Remove the pressure roller from the fixing unit cover by gently levering the right hand side upwards to release it from the bearing and then sliding it to the right to remove it.

(19) Remove the pressure roller cleaner complete with the cleaner spring from the fixing unit cover by lifting it upwards until the spring releases from the cover.

(20) Remove the cleaner spring from the pressure roller cleaner.

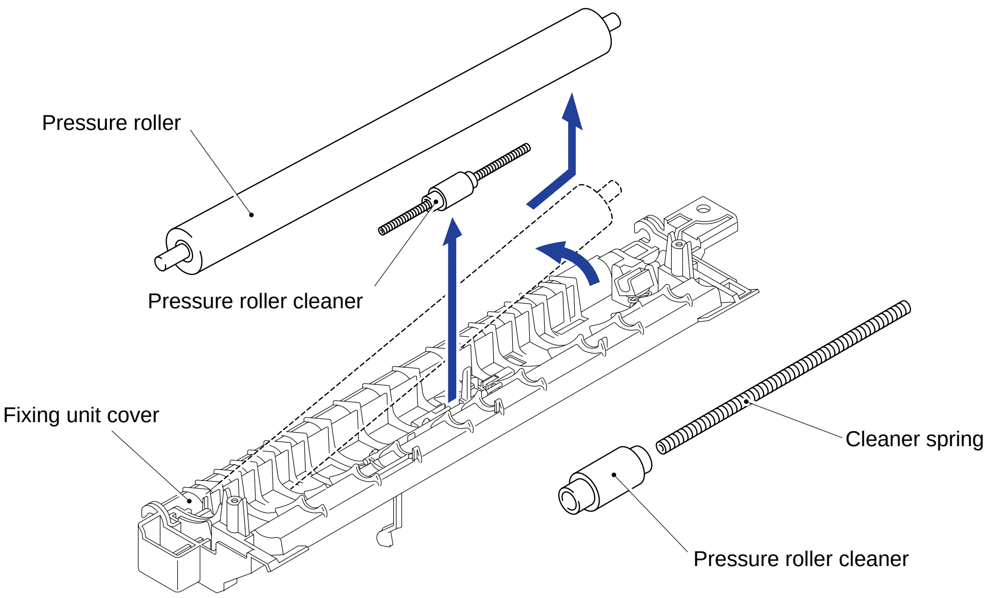


Fig. 4-44

NOTE:

- *When re-assembling the pressure roller cleaner complete with the cleaner spring onto the fixing unit cover, ensure the direction of the roller is correct referring to the figure above.*
- *Ensure also that the spring is seated correctly in the locating channel and does not protrude from either end.*

(21) Release the thermistor harness from the hooks on the fixing unit frame and then remove the one M3x12 Taptite screw and remove the thermistor.

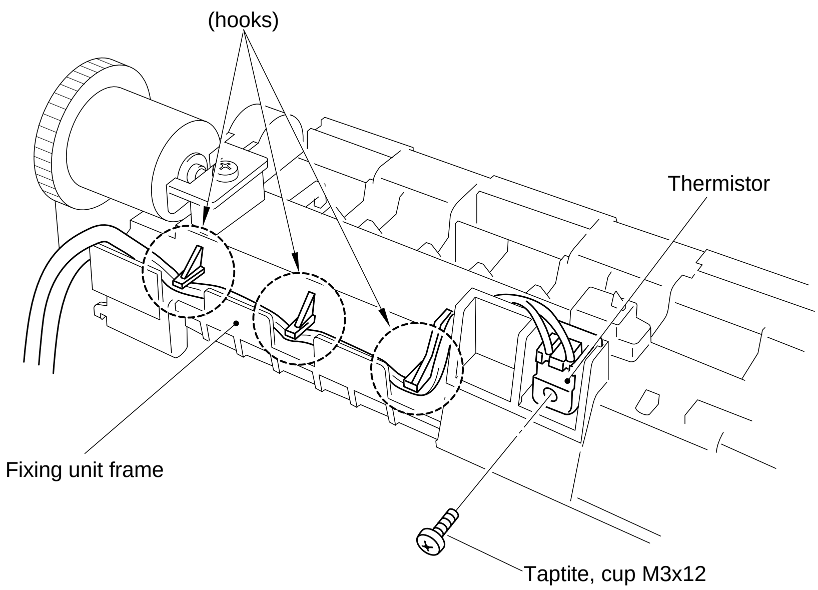


Fig. 4-45

NOTE:

When re-assembling the thermistor to the fixing unit frame, ensure the direction of the thermistor is correct referring to the figure below;

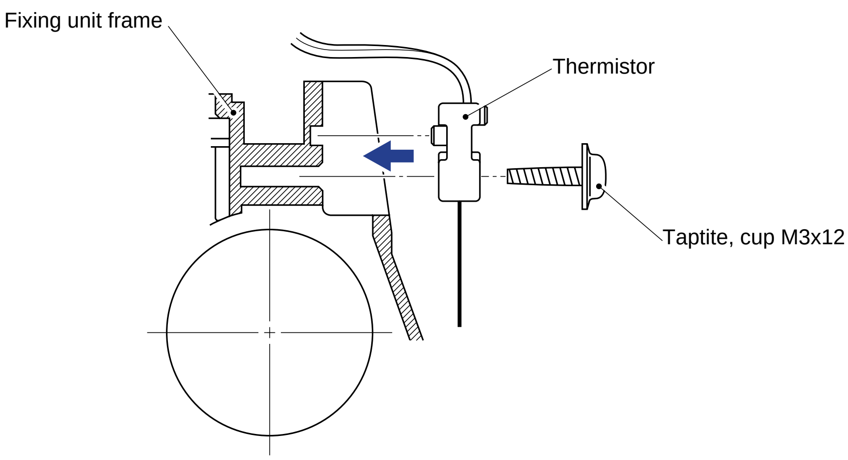


Fig. 4-46

(22) Press the two catches holding the idle gear 13 to the frame and then remove the idle gear 13. Slide the first eject roller to the left until the slot in the roller shaft aligns with the slot in the frame and then remove the roller by pulling it forwards.

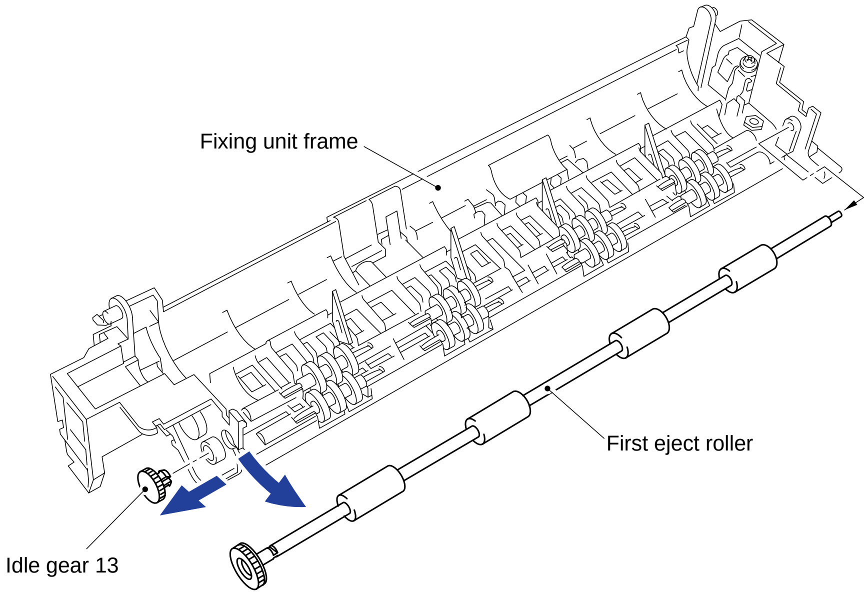


Fig. 4-47

(23) Remove the eight eject pinch rollers and pinch springs by lifting them upwards until the springs release from the frame.

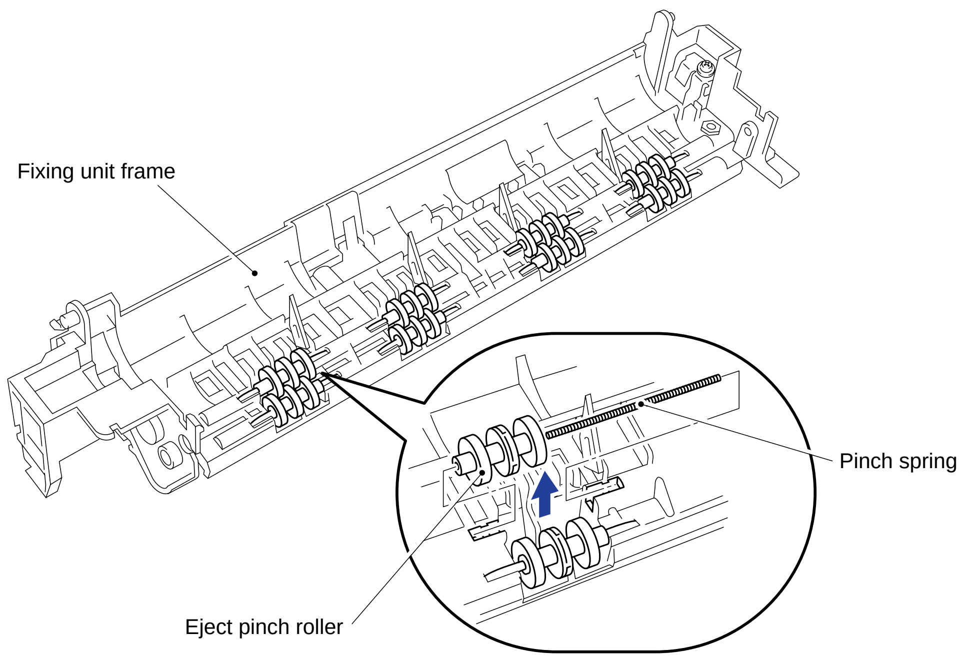


Fig. 4-48

(24) Turn the frame up-side down. Remove the black films (4 pcs.) and then remove the pick off fingers (4 pcs.) using a piece of tweezers.

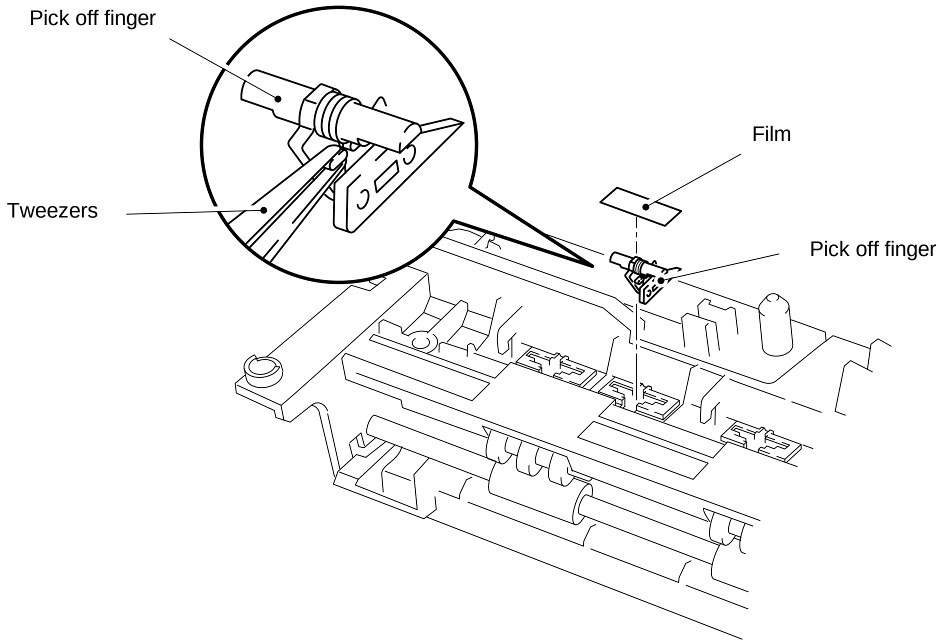


Fig. 4-48a

(25) Release the paper eject actuator from the hook on the fixing unit cover, and then slide the paper eject actuator to the right direction to remove the paper eject actuator and the eject paper spring from the fixing unit cover.

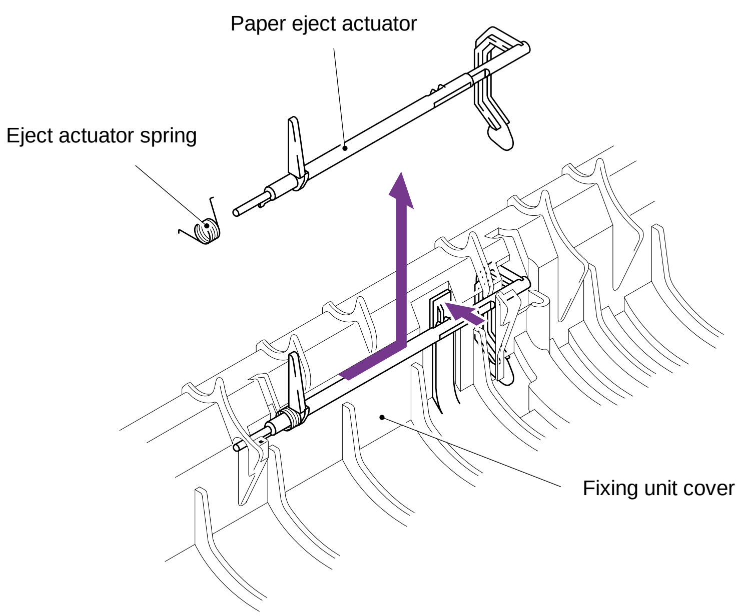


Fig. 4-48b

NOTE:

When re-assembling the paper eject actuator and the eject paper spring to the fixing unit cover, ensure the paper eject actuator is seated correctly in the locating channel referring to the figure below;

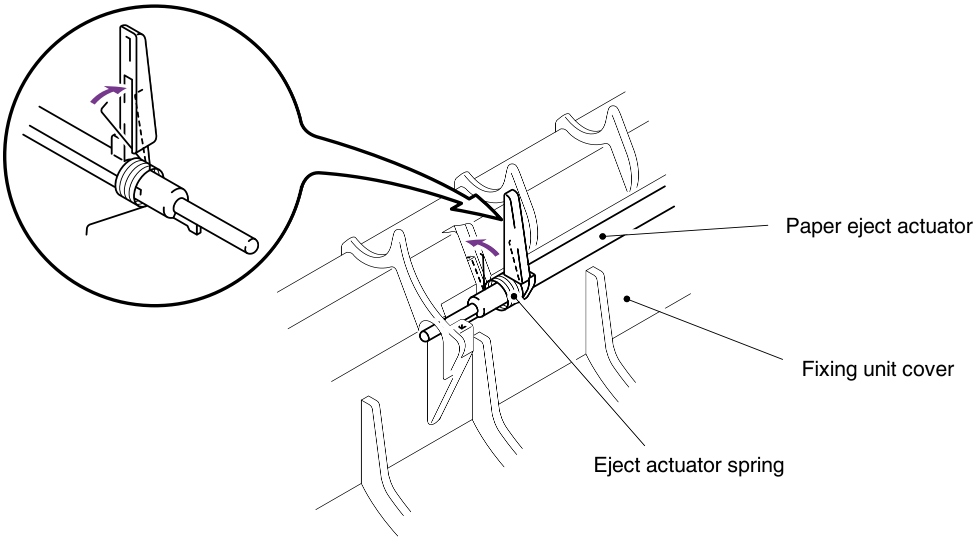


Fig. 4-48c

3.11 Base Plate

(1) Turn the main frame upside down.

(2) Remove the five M4x10 Taptite screws and 16 (sixteen) M3x8 Taptite screws from the base plate.

(3) Slide the base plate to the rear of the printer to remove it.

> **CAUTION:**
> *Do not remove the ground wire connected to the base plate if it is not necessary to remove the low-voltage power supply unit. Unnecessary disconnection of the ground wire may cause increased printer noise.*

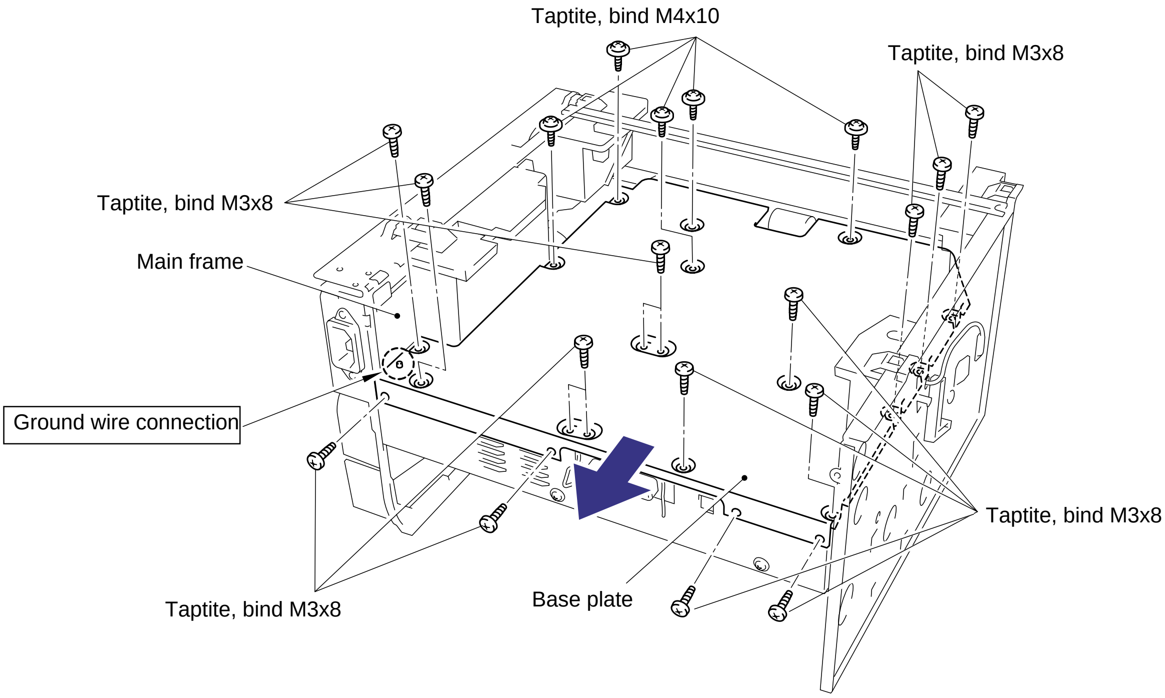


Fig. 4-48

CAUTION:

- *When re-assembling the base plate, be sure that the ground wire connected to the paper feed roller ASSY is fixed into the slit on the plastic chute referring to the figure below;*

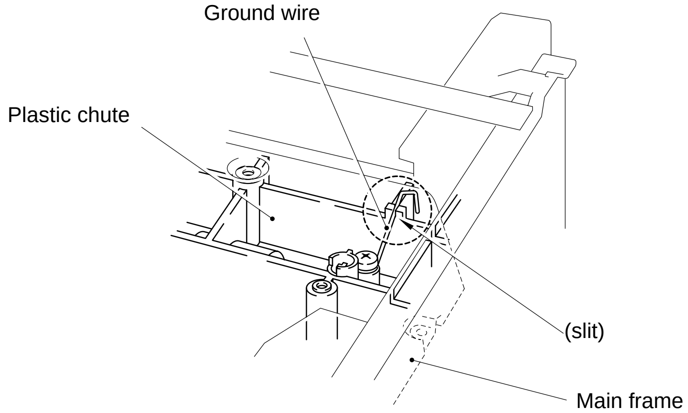


Fig. 4-49

- *When securing the screws to assemble the base plate, ensure you use the jig shaft referring to the figure below so that the engine PCB is assembled correctly;*

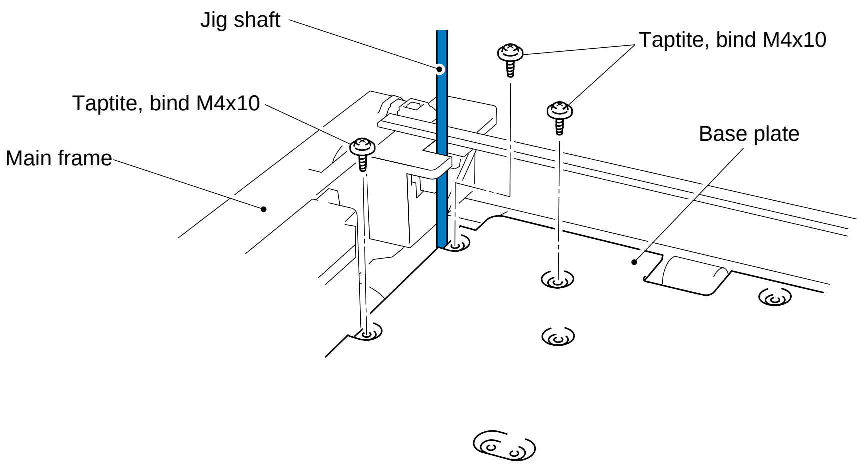


Fig. 4-50

3.12 Main PCB ASSY

NOTE: For HL-1250/1270N only
Ensure that any installed SIMM memory is removed BEFORE removing the main PCB.

(1) Remove the two M3x8 screws from the I/F plate to release the main PCB.

(2) Lift the insulation sheet and remove the main PCB ASSY.

(3) Disconnect the three connectors for the low-voltage power supply, engine PCB and LD.

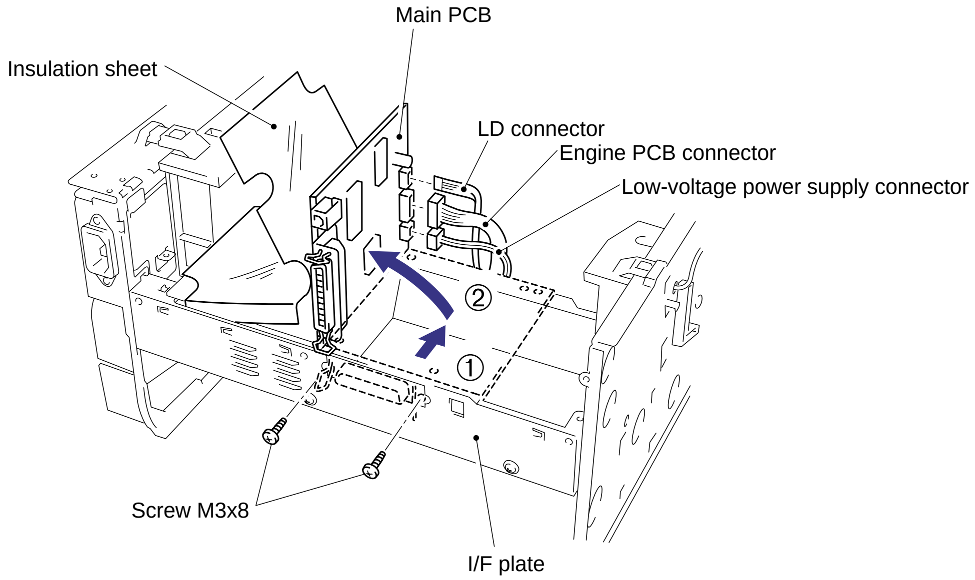


Fig. 4-51

3.13 Lower Tray Relay PCB ASSY (for HL-1250/1270N only)

(1) Remove the M3x6 Taptite screw and remove the lower tray relay PCB ASSY.

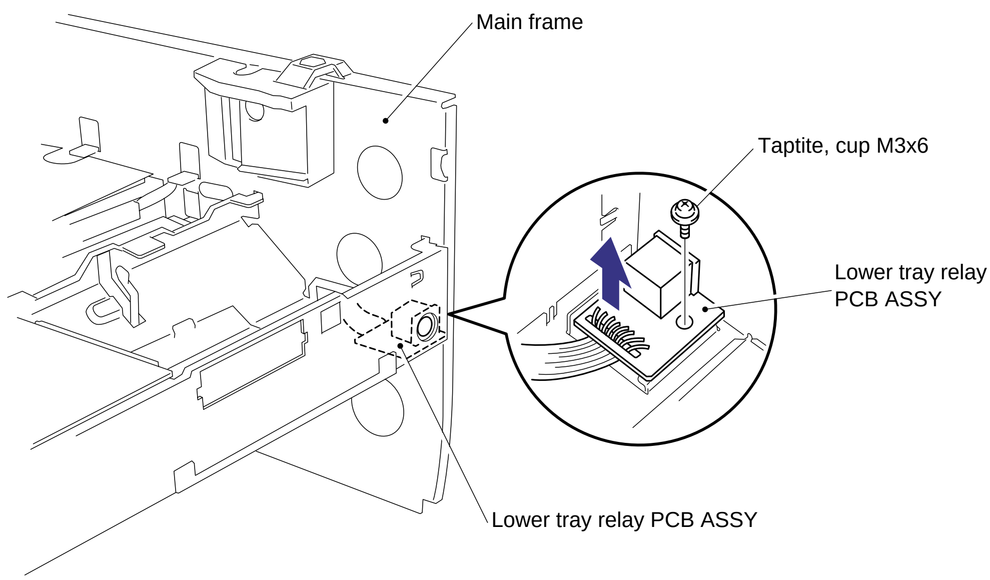


Fig. 4-52

3.14 Low-Voltage Power Supply PCB ASSY

(1) Remove the M3x8 Taptite screw to remove the insulation sheet.

(2) Slightly lift up the low-voltage power supply PCB ASSY from the frame and disconnect the engine PCB connector. Then lift the power supply PCB ASSY further and disconnect the halogen heater lamp connector.

(3) Remove the M3.5x6 screw to disconnect the ground wire from the base plate.

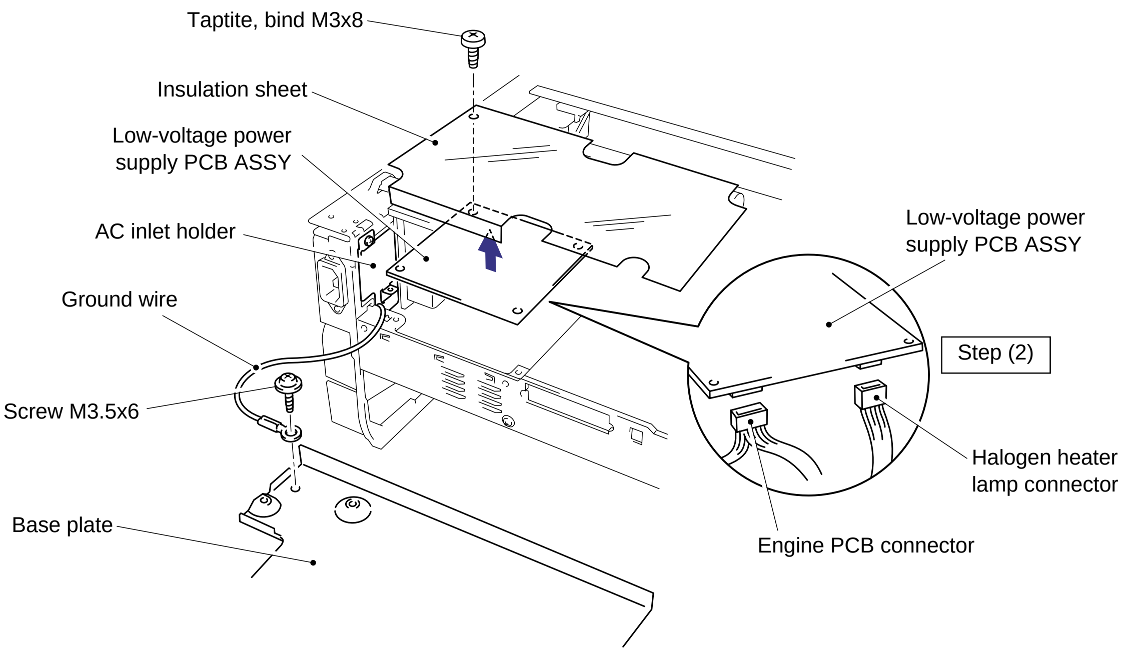


Fig. 4-53

(4) Remove the M3x6 Taptite screw securing the AC inlet holder.

(5) Turn the AC inlet to the right to release it and remove the AC inlet ASSY and the low-voltage power supply PCB together.

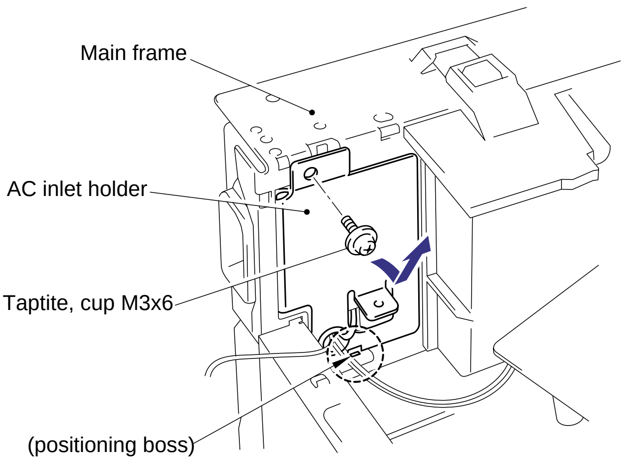


Fig. 4-54

NOTE:

When re-assembling the AC inlet holder, fix the holder onto the positioning bosses first, then secure it to the frame with the screw. (Refer to the figure above.)

PR99188

CAUTION:

Be sure to attach the film to the AC inlet ASSY in the following cases referring to the figure below;

- *If the film is not attached to the AC inlet on the printer you are servicing.*
- *If the film is damaged, or the adhesive is weak.*

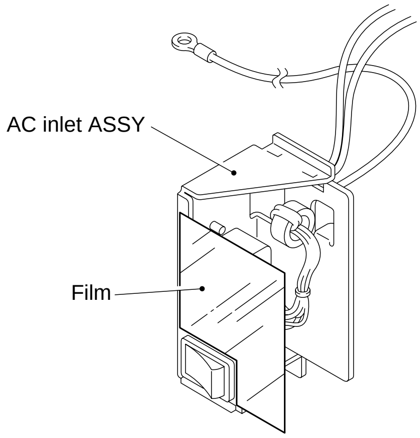


Fig. 4-55a

3.15 Engine PCB ASSY / High-Voltage Power Supply PCB ASSY

(1) Remove the M4x12 Taptite screw to remove the insulation sheet.

(2) Remove the three M4x12 Taptite screws securing the engine PCB and the high-voltage power supply PCB.

(3) Lift the engine PCB and high-voltage power supply PCB together and disconnect the connector which connects two PCBs together to remove the high-voltage power supply PCB ASSY.

(4) If necessary, remove the T/R electrode helical spring from the T/R plate.

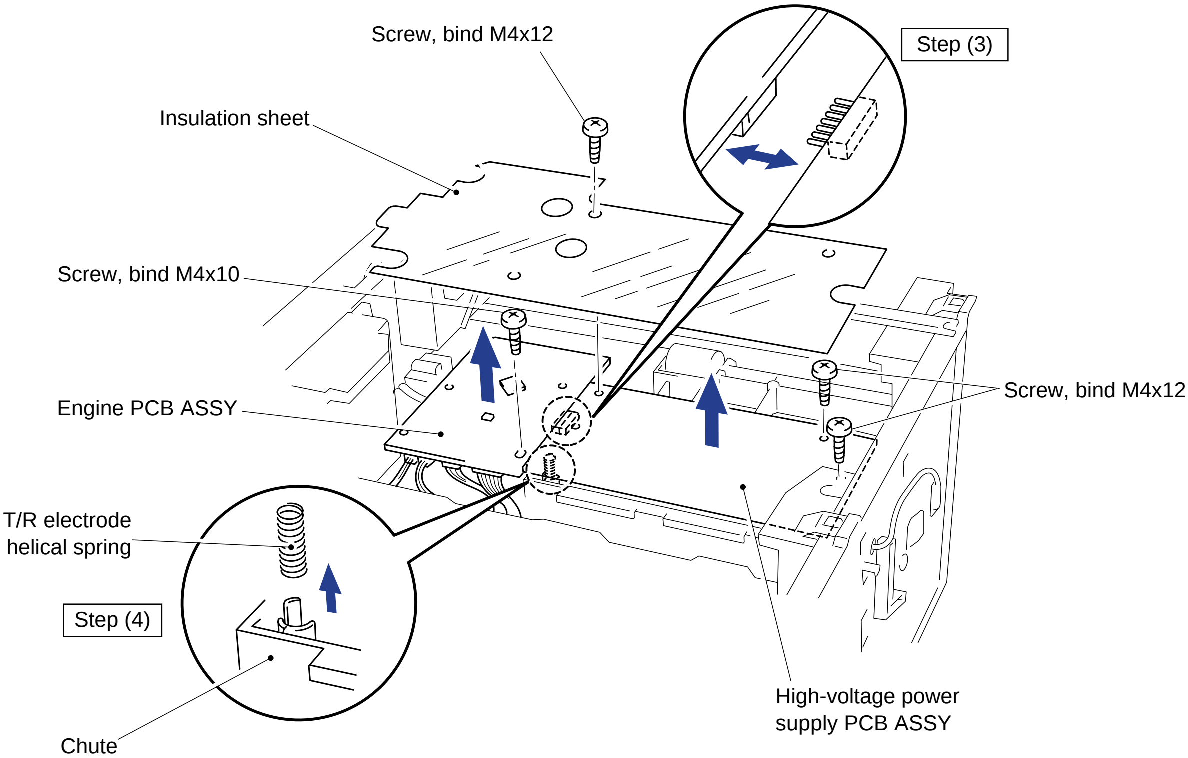


Fig. 4-55

CAUTION:

Be sure not to lose the T/R electrode helical spring after removing it.

NOTE:

When re-assembling the T/R electrode helical spring onto the plate, press the spring onto the plate firmly with a flat bladed screwdriver and ensure that it is retained securely.

CAUTION:

The high-voltage power supply PCB has been upgraded from the middle of September '99 production to improve the print quality.
In accordance with the change the T/R electrode helical spring has been also changed.
As we supply both old and new versions of high-voltage power supply PCB and helical spring, ensure that you replace the same version of them.
The old and new versions are incompatible each other. For details, refer to the parts reference list.

(5) Disconnect the 11 (eleven) connectors for HL-1030/1240 or 12 (twelve) connectors for HL-1250/1270N from the engine PCB to remove the engine PCB ASSY.

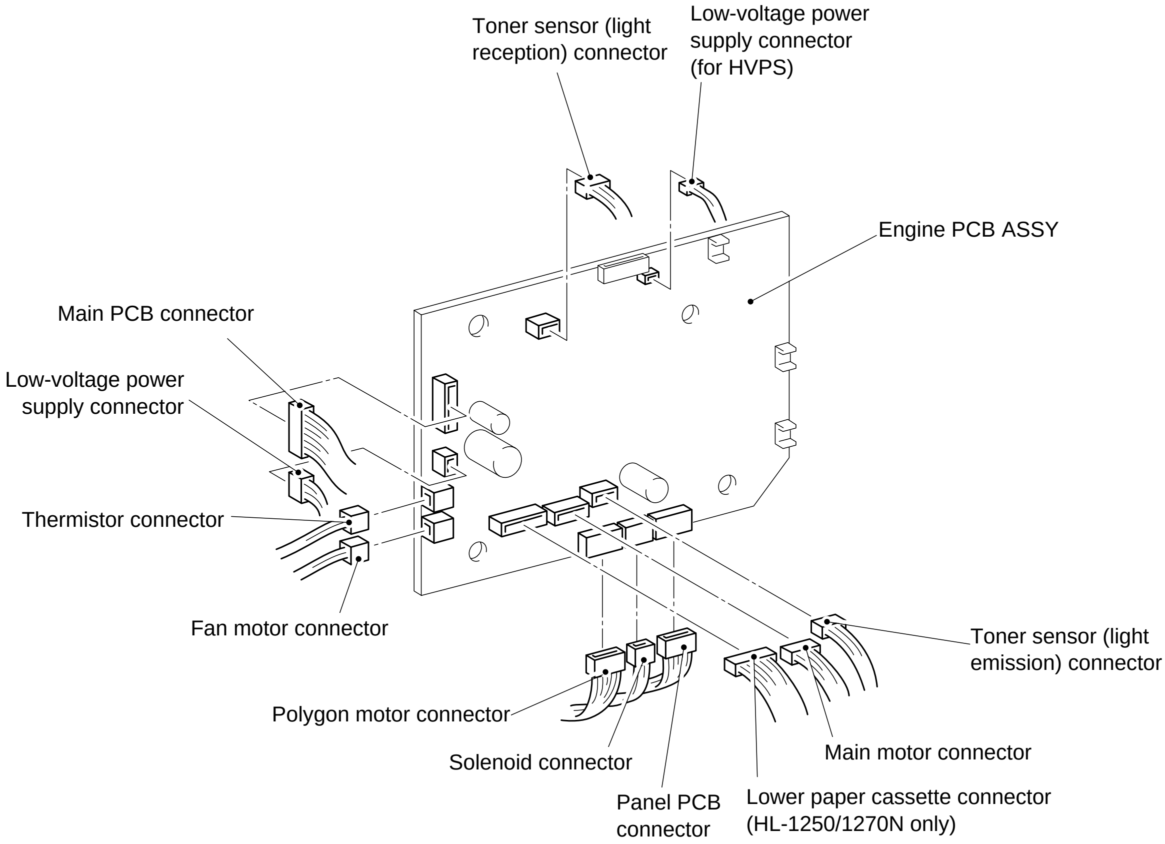


Fig. 4-56

CAUTION:

- *Even if you want to remove only one of either the engine and high-voltage power supply PCBs, ensure you remove all screws securing both PCBs and disconnect the central connector while lifting both of them up. Failure to do so may damage the PCBs.*
- *When re-assembling the engine PCB, ensure it is aligned with the positioning boss first. Be careful the main motor harness is not caught between the engine PCB and the frame.*
- *When re-assembling the engine PCB or high-voltage power supply PCB, ensure the central connector is connected correctly.*
- ***The engine PCB has been upgraded from the middle of September '99 production to improve the print quality. As we supply both old and new versions of engine PCB, ensure that you replace the same version of the engine PCB. The old and new versions are incompatible each other. For details, refer to the parts reference list.***

3.16 Panel PCB ASSY

NOTE:

Be sure to remove the drive unit and disconnect the panel PCB connector on the engine PCB before removing the panel PCB ASSY.

(1) Remove the M3x6 Taptite screw, then remove the panel PCB ASSY.

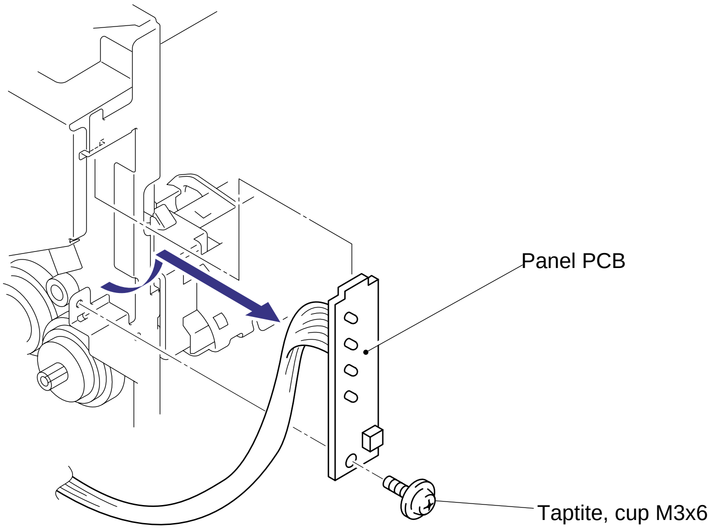


Fig. 4-57

3.17 Solenoid ASSY

NOTE:

Be sure to remove the drive unit and disconnect the solenoid connector on the engine PCB before removing the solenoid ASSY.

(1) Place the main frame so that the drive unit side is at the top.

(2) Release the catch and remove the planetary gear from the paper pick-up roller shaft.

(3) Remove the planetary gear from the paper feed roller shaft and gear 56.

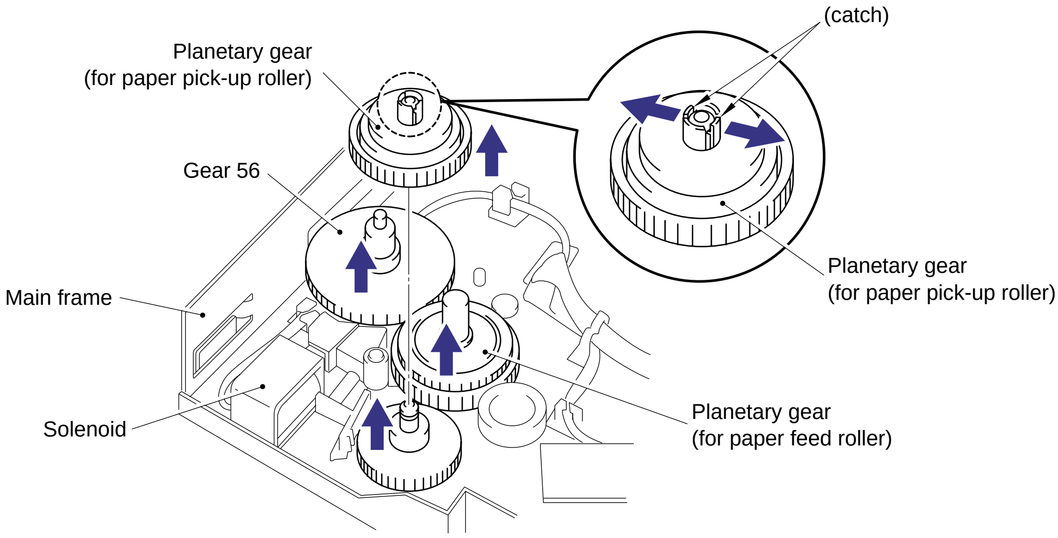


Fig. 4-58

(4) Release the catch and remove the clutch levers for the feed roller and pick-up roller.

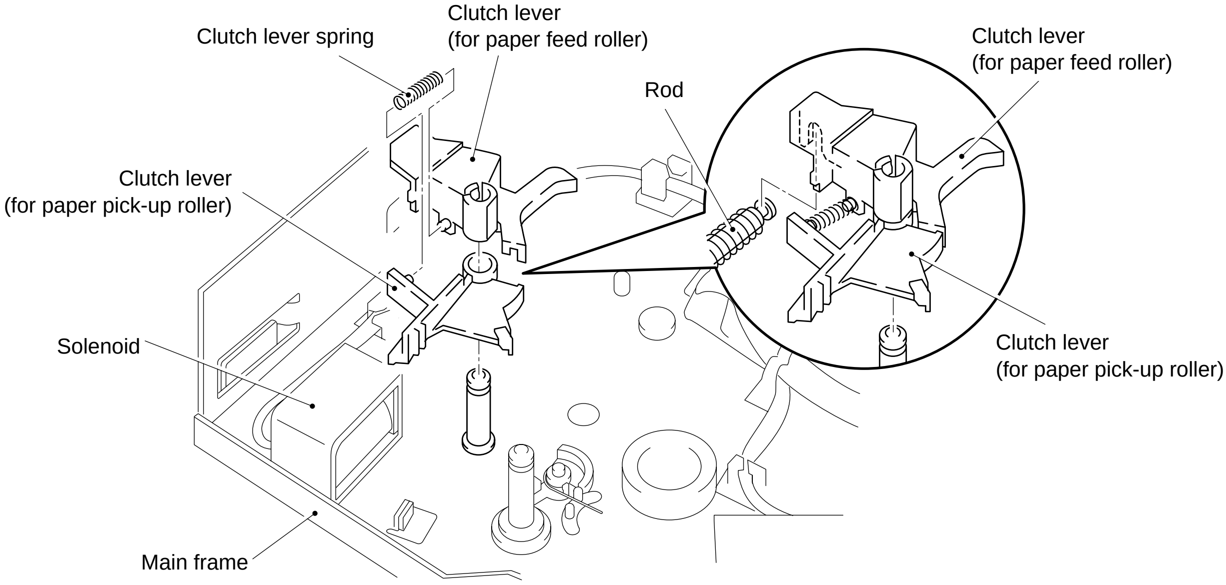


Fig. 4-59

> **CAUTION:**
> - *When removing the clutch levers, the clutch lever spring may come off. Be sure not to lose it.*
> - *When re-assembling the clutch lever for the paper feed roller, ensure that the U shaped groove of the lever is fitted onto the rod in the solenoid correctly referring to the figure above.*

(5) Place the main frame the right way up and remove gear 59 if not removed earlier during fixing unit removal.

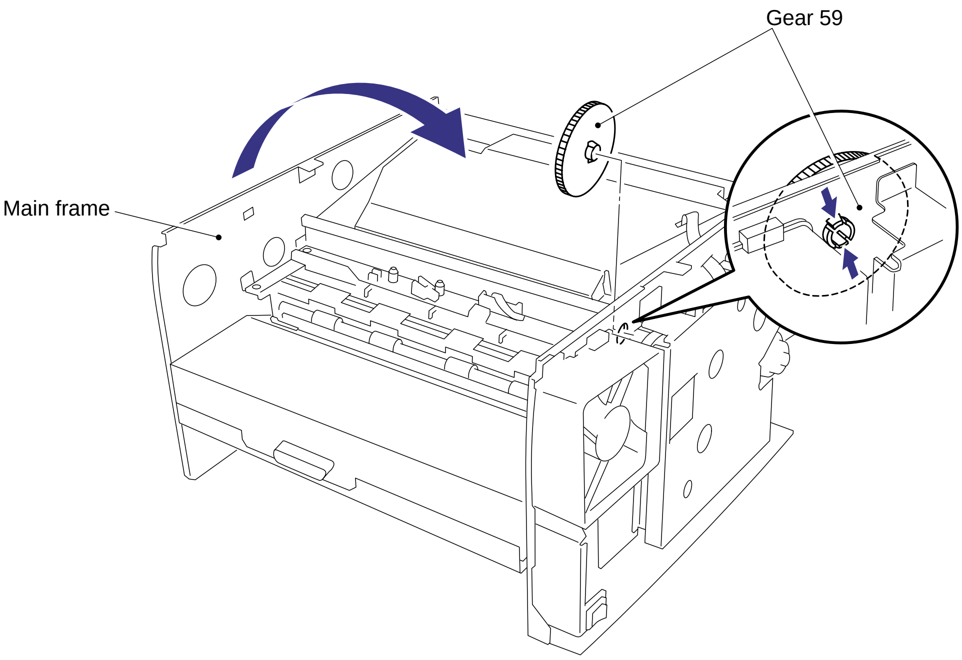


Fig. 4-60

NOTE:
When re-assembling the solenoid, ensure you do not forget to refit gear 59.

(6) Turn the main frame upside down.

(7) Remove the two M3x6 Taptite screws and release the solenoid harness from the hook and remove the cassette guide L/F.

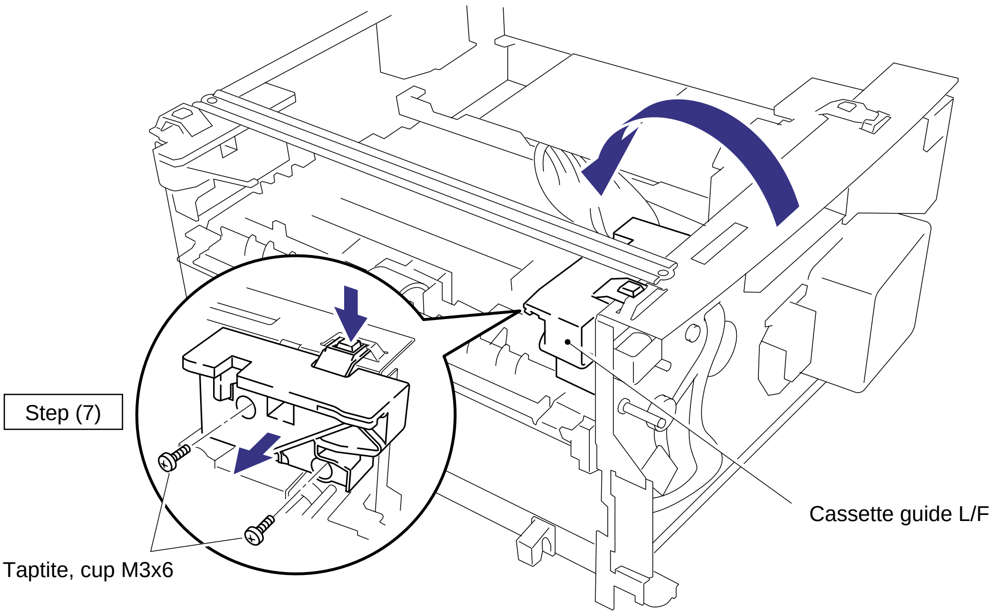


Fig. 4-61

(8) Remove the M3x4 screw and the tape on the solenoid harness and remove the solenoid ASSY.

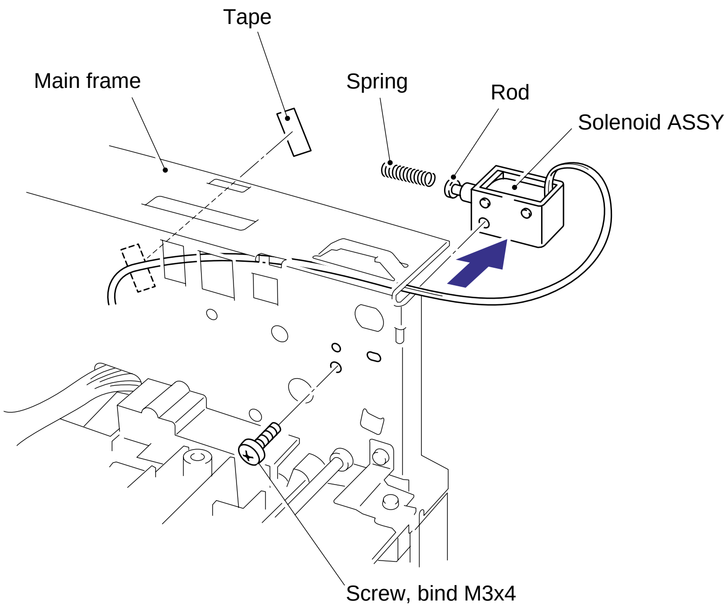


Fig. 4-62

> **CAUTION:**
> *When removing the solenoid, the solenoid rod and spring may come off. Be careful not to lose them. (Refer to the figure above.)*

3.18 Fan Motor ASSY

NOTE:

Be sure to remove the fixing unit and disconnect the fan motor connector on the engine PCB before removing the fan motor ASSY.

(1) Place the main frame so that the fan motor ASSY is at the top.

(2) Remove the two M3x6 Taptite screws securing the fan cover.

(3) Remove the fan motor ASSY with the fan cover and remove the fan motor ASSY from the cover.

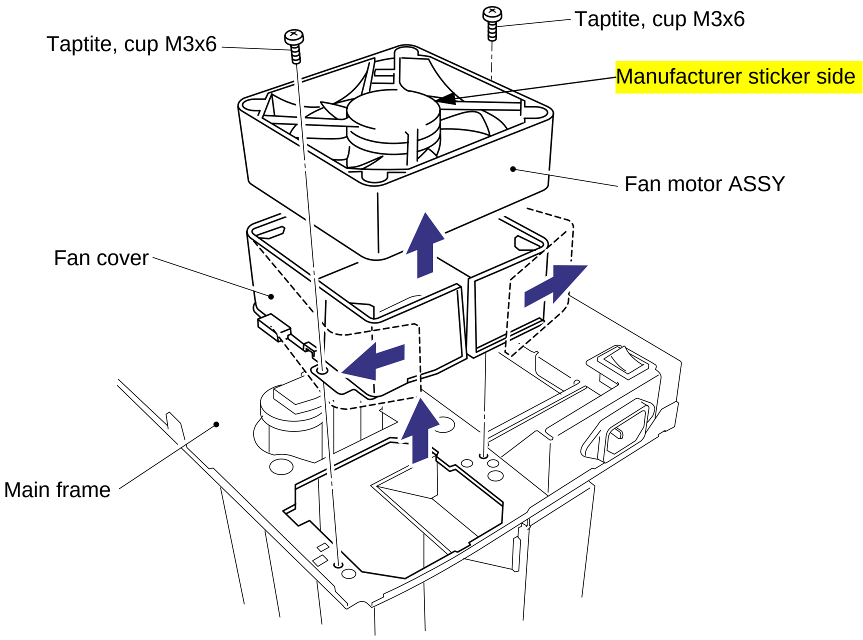


Fig. 4-63

NOTE:

When re-assembling the fan motor, fix the harness into the groove on the motor, then fix the motor onto the bosses.

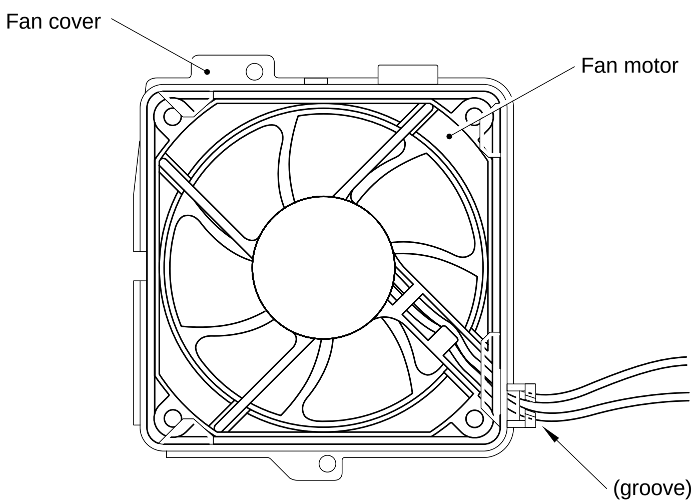


Fig. 4-64

3.19 Toner Sensor PCB ASSY (Light Emission)

NOTE:

Be sure to disconnect the toner sensor (light emission) connector on the engine PCB before removing the toner sensor PCB ASSY (light emission).

(1) Release the hooks of the toner sensor PCB ASSY (light emission) and remove it.

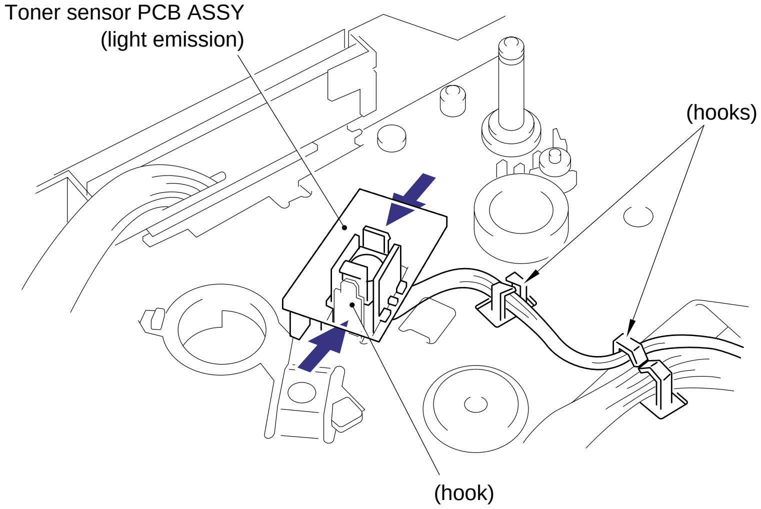


Fig. 4-65

3.20 Toner Sensor PCB ASSY (Light Reception)

NOTE:

Be sure to disconnect the toner sensor (light reception) connector on the engine PCB before removing the toner sensor PCB ASSY (light reception).

(1) Remove the one M3x6 Taptite screw and release the hooks, then remove the toner sensor PCB ASSY (light reception).

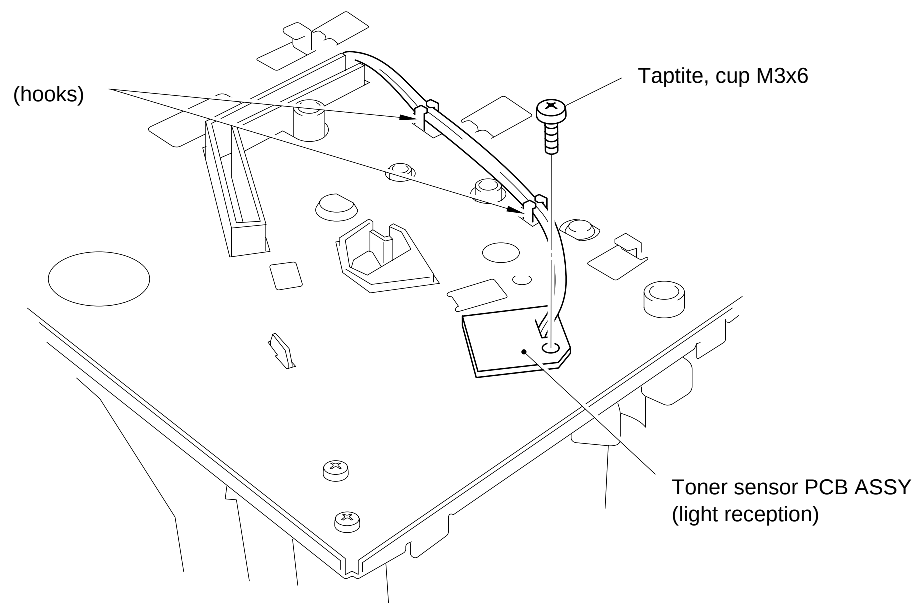


Fig. 4-66

3.21 Paper Pick-up Roller ASSY

NOTE:

Be sure to remove all the covers and the base plate before removing the paper pick-up roller ASSY.

(1) Place the main frame upside down.

(2) Unhook the hook to remove the inner gear 54, gear 45 and gear 20 from the main frame.

(3) Remove the bearing from the paper pick-up roller shaft.

(4) Release the hook on the bearing at the other side of the shaft and remove the paper pick-up roller ASSY and the shaft from the main frame.

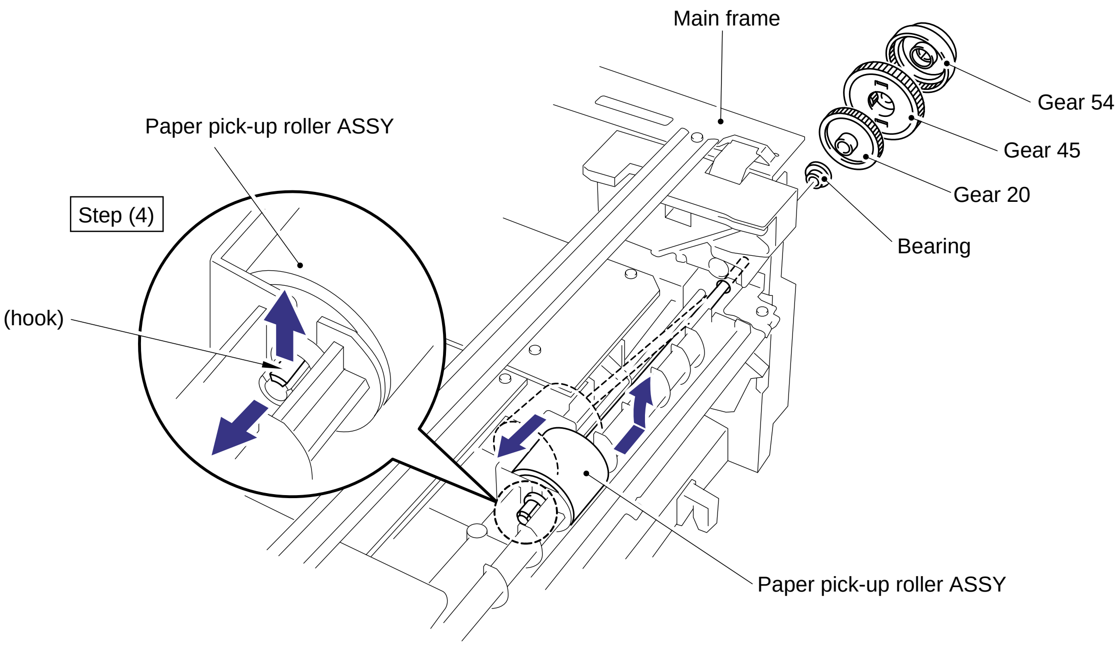


Fig. 4-67

(5) Remove the bearing and the paper pick-up roller ASSY from the shaft.

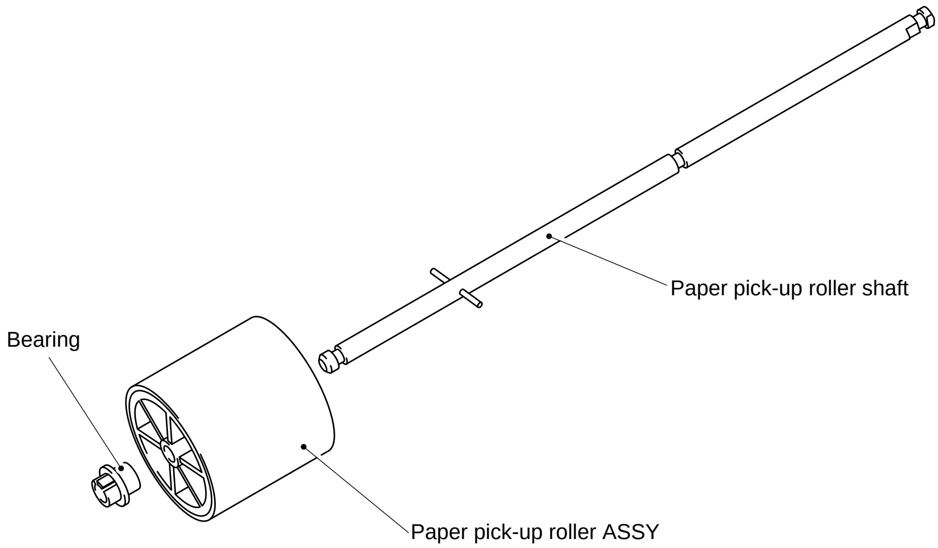


Fig. 4-68

3.22 Paper Feed Roller ASSY

NOTE:
Be sure to remove all the covers and the PCBs before removing the paper feed roller ASSY.

(1) Unhook the black plastic hook on the shaft to remove gear 21.

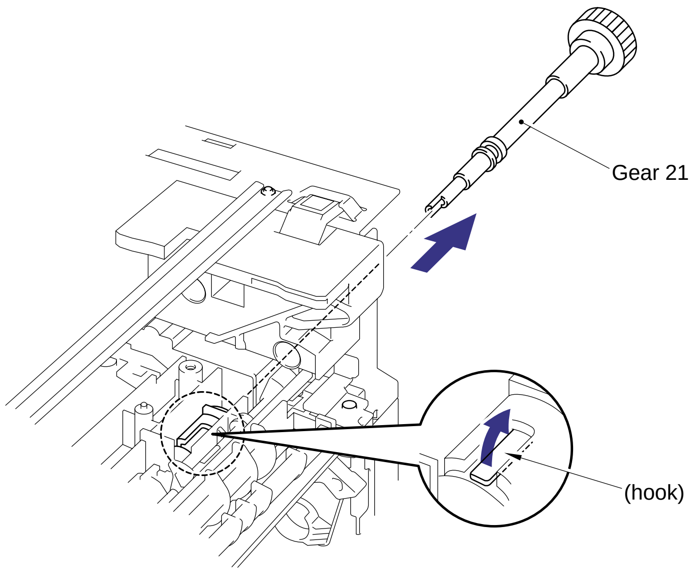


Fig. 4-69

> **CAUTION:**
> ***The plastic hook holding gear 21 will break easily if it is not fully released before the gear is pulled to remove it. Ensure that the hook is fully released BEFORE attempting to remove gear 21.***

(2) Turn the main frame the right way up.

(3) Unhook the hook on the bearing, then slightly slide the paper feed roller ASSY to the drive unit side.

(4) Lift up and remove the paper feed roller with the bearing and joint and remove the bearing and joint from the paper feed roller ASSY.

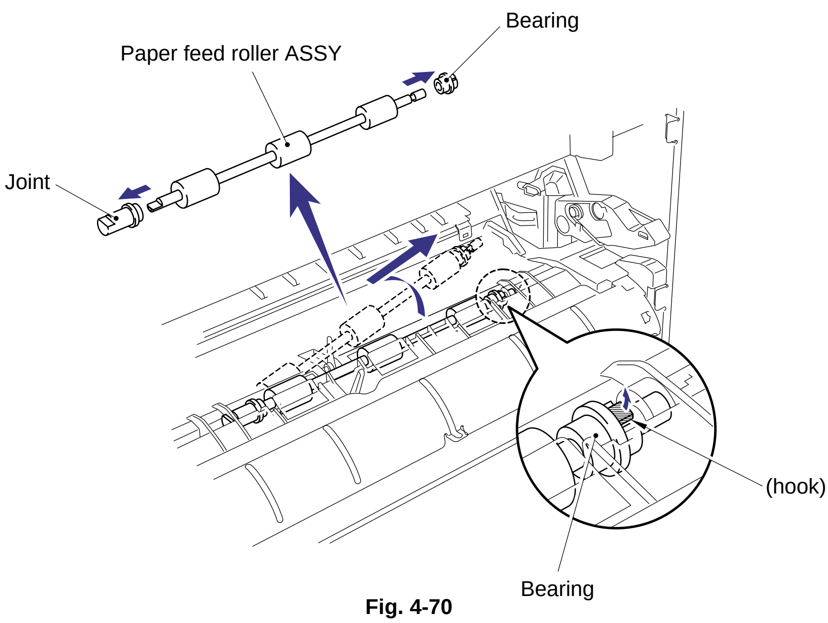


Fig. 4-70

3.23 Outer Chute 1

(1) Remove two M3x6 Taptite screws and two M3x8 Taptite screws to remove the outer chute 2 ASSY.

(2) Unhook two hooks using a slotted screwdriver and then remove the outer chute 1.

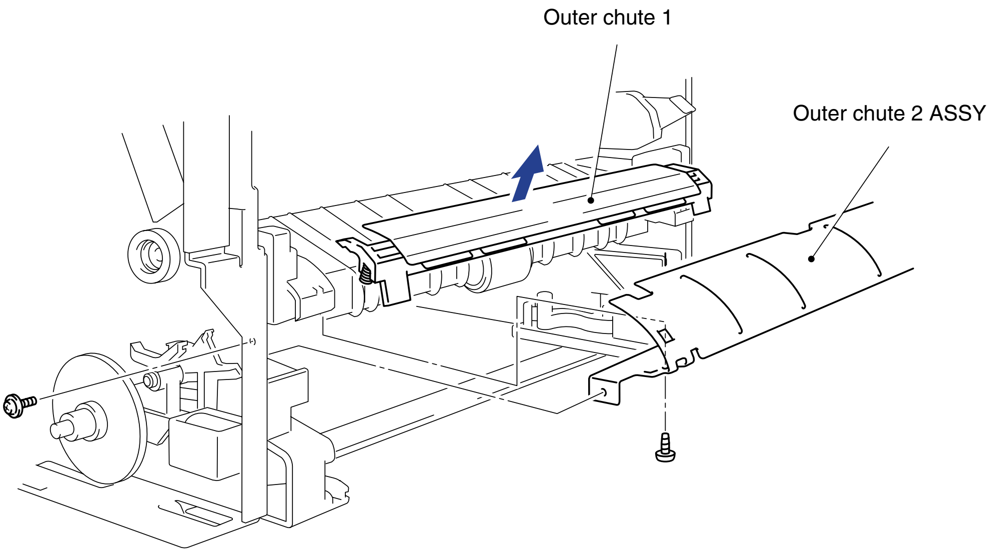


Fig. 4-70a

4. PACKING

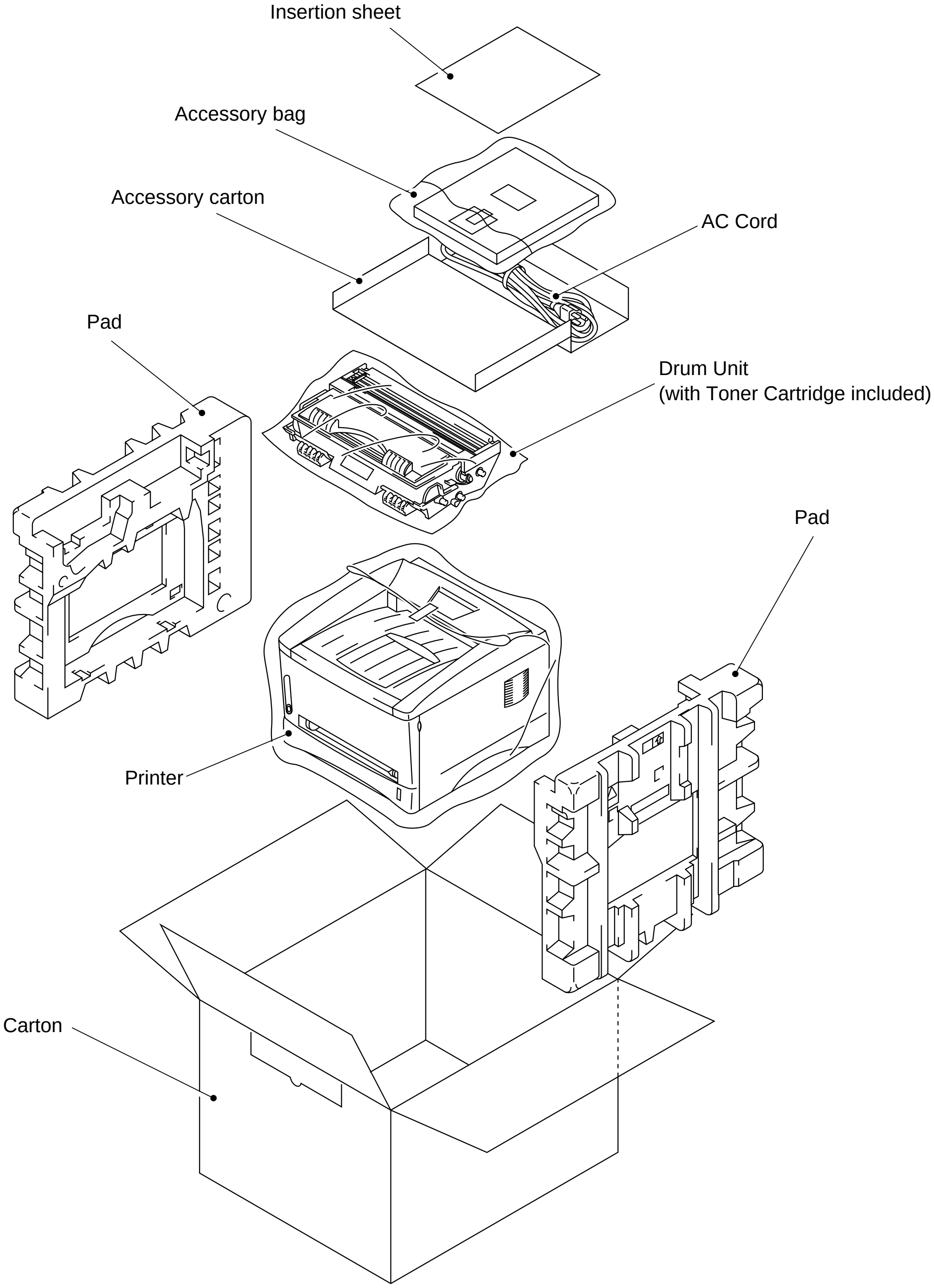


Fig. 4-71

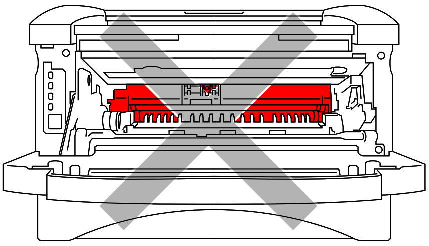
CHAPTER5   PERIODIC MAINTENANCE

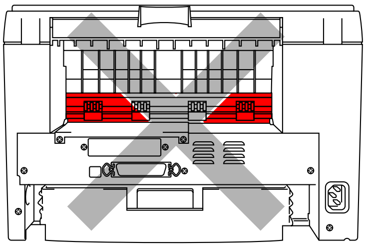
To avoid creating secondary problems by mishandling, follow the warnings below during maintenance work.

WARNING

(1) Always turn off the power switch and unplug the power cord from the power outlet before accessing any parts inside the printer.

(2) Some parts inside the printer are extremely hot immediately after the printer is used. When opening the front cover or rear cover to access any parts inside the printer, never touch the red colored parts shown in the following figures.





1. CONSUMABLE PARTS

The consumable parts described in this section are parts which are subject to deterioration or damage and should be replaced at least once during the period of warranty of the product if any print quality problem appears.

1.1 Drum Unit

The Drum LED is on when the drum unit is nearly at the end of its life.

Life expectancy: 20,000 pages

NOTE:

There are many factors that determine the actual drum life, such as temperature, humidity, type of paper and toner that you use, the number of pages per print job, etc.

<Replacement Procedure>

(1) Open the front cover of the printer and pull out the drum unit.

(2) Place the drum unit on a flat, horizontal surface, and remove the toner cartridge from the drum unit while pushing the lock lever down with your right hand. (Fig. 5-1)

(3) Unpack the new drum unit.

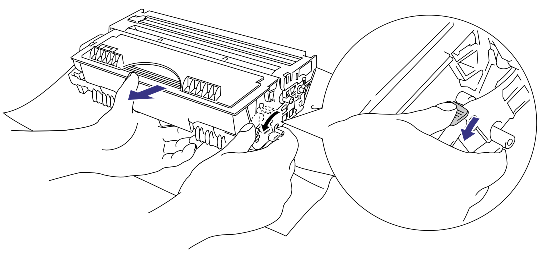


Fig. 5-1

(4) Install the toner cartridge into the new drum unit until it locks into place, indicated by a click. When the toner cartridge is installed correctly, the lock lever is lifted automatically. (Fig. 5-2)

(5) Install the new drum unit into the printer. Check that the printer is turned on, the front cover is open and the Drum and Alarm LEDs illuminate.

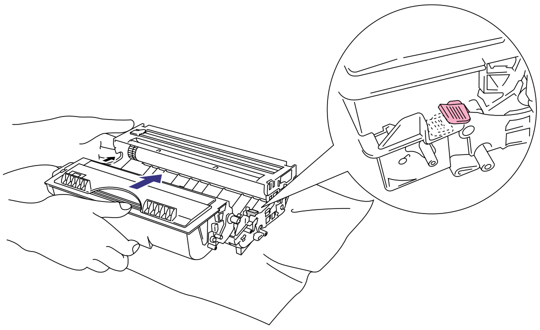


Fig. 5-2

(6) Press the control panel button until all the LEDs are on. (The LED turns on in sequence from top to bottom.) The drum page counter is reset.

(7) Close the front cover, and check that the Drum LED is now off.

CAUTION:

- *For best performance, use only genuine Brother toner. The product should only be used in a clean, dust-free environment with adequate ventilation..*
- *Only unpack a drum unit immediately before you need to install it into the printer. If an unpacked drum unit is subjected to excessive direct sunlight or room light, the unit may be damaged.*
- *Handle the drum unit and toner cartridge carefully. If toner scatters on your hands or clothes, wipe or wash it off with cold water immediately.*
- *Do not reset the page counter when replacing the toner cartridge only.*

1.2 Toner Cartridge

Toner low:	The Data and Alarm LEDs blink once every five seconds.
Toner empty:	The Data and Alarm LEDs blink once every second.
Life expectancy:	3,000 pages/standard toner cartridge 6,000 pages/high-capacity toner cartridge (When printing A4- or Letter-size paper at 5% print coverage)

NOTE:

There are many factors that determine the actual toner life, such as temperature, humidity, type of paper that you use, the number of pages per print job, etc.

<Replacement Procedure>

(1) Open the front cover, and pull out the drum unit from the printer.

(2) Place the drum unit containing the old toner cartridge on a flat, horizontal surface, and remove the toner cartridge from the drum unit while pushing the lock lever down with your right hand.

(3) Unpack the new toner cartridge, and gently rock it from side to side 5 or 6 times keeping it horizontal. (Fig. 5-3)

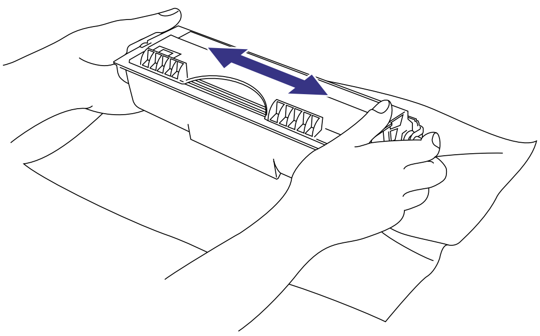


Fig. 5-3

(4) Remove the protective cover. (Fig. 5-4)

(5) Install the new toner cartridge into the drum unit until it locks into place, indicated by a click. When the toner cartridge is installed correctly, the lock lever is lifted automatically.

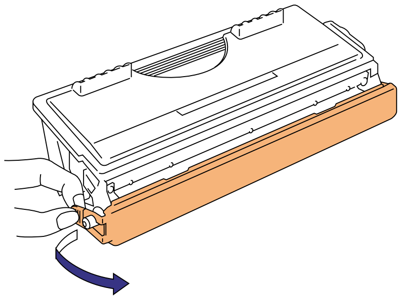


Fig. 5-4

(6) Clean the primary corona wire inside the drum unit by gently sliding the wire cleaner (blue tab) to the right end and left end several times. (Fig. 5-5)

(7) Return the cleaner to the home position before re-installing the drum unit.

(8) Re-install the drum unit into the printer and close the front cover.

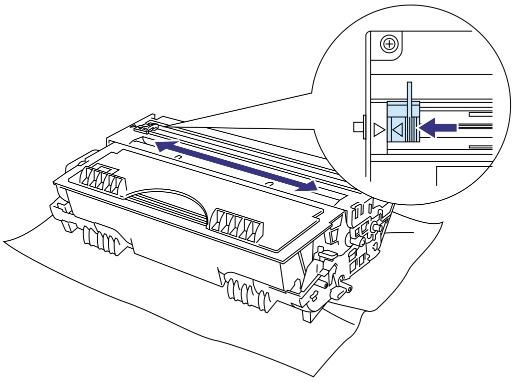


Fig. 5-5

CAUTION:

- *Keep the drum unit level after removing the toner cartridge to avoid possible toner spill or scatter.*
- *Handle the drum unit and toner cartridge carefully. If toner scatters on your hands or clothes, wipe or wash it off with cold water immediately.*
- *Only unpack a toner cartridge immediately before you need to install it into the printer. If a toner cartridge is left unpacked for a long period of time, the toner life is shortened*
- *If an unpacked drum unit is subjected to excessive direct sunlight or room light, the unit may be damaged.*
- *Use a Brother genuine toner cartridge which is specially formulated to ensure top print quality.*
- *Printing with a 3rd party toner or toner cartridge may reduce not only the printing quality but also the quality and life of the printer itself. It may also cause serious damage to the performance and life of a genuine Brother drum unit. Warranty cover is not applied to problems caused by the use of 3rd party toner or toner cartridges.*
- *Make sure that the wire cleaner on the drum unit is returned to the home position (▲ mark position) before re-installing the drum unit into the printer, or printed pages may have vertical stripes.* *(Refer to Fig. 5-5.)*
- *Install the toner cartridge immediately after you remove the protective part. Do not touch the development roller and photosensitive drum colored red as shown below;*

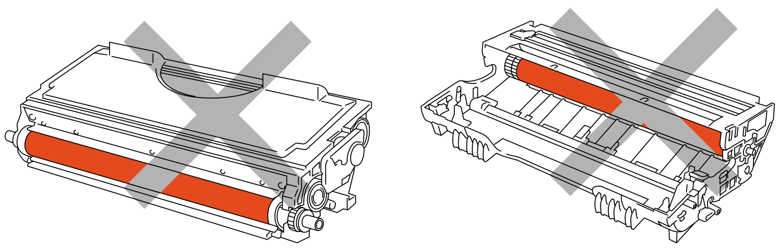


Fig. 5-6

2. PERIODICAL REPLACEMENT PARTS

Periodical replacement parts are the parts to be replaced periodically to maintain product quality. These parts would affect the product quality greatly if they lost their function even if they do not appear to be damaged or there is no change in their appearance.)

The periodical replacement parts listed below should be replaced at the service center referring to the service life. For the procedures to replace these parts, refer to CHAPTER 4 “DISASSEMBLY AND RE-ASSEMBLY”.

Parts Name	Part No.	Qty	Service life (number of prints)	Replacement Procedure
Fixing Unit (120V)	LJ4164001	1	50,000 pages	See P. 4-18
Fixing Unit (230V)	LJ4168001	1	50,000 pages	See P. 4-18.
Separation Pad Holder ASSY	UL9084001	1	50,000 pages	See P. 4-4.
Paper Pick-up Roller ASSY	UL9066001	1	50,000 pages	See P. 4-38.

NOTE:
The above table shows only estimated values. They are subject to change without prior notice.

3. PERIODICAL CLEANING

Clean the following parts periodically to avoid any printer problems or print image defects.

> ***CAUTION:***
> *While drum unit and scanner window cleaning basically can be implemented by the end user, the electrical terminals inside the printer and on the drum unit should be cleaned by a service technician. Instruct the users not to touch those terminals.*

3.1 Cleaning the Printer Exterior

Clean the printer exterior to keep the printer clean.

1) Turn off the power switch and unplug the power cord.
2) Wipe dirt and dust away from the printer exterior with a damp cloth and allow the printer to dry completely before turning the power on again.

> ***CAUTION:***
> *Use water or neutral detergents for cleaning. Cleaning with volatile liquids such as thinners or benzene will damage the surface of the printer.*

3.2 Cleaning the Drum Unit

When replacing the drum unit or toner cartridge with a new one, be sure to clean the drum unit.

1) Turn off the power switch and unplug the power cord.
2) Remove the drum unit from the printer.
3) Clean the primary corona wire inside the drum unit by gently sliding the wire cleaner (blue tab) to the right end and left end several times.

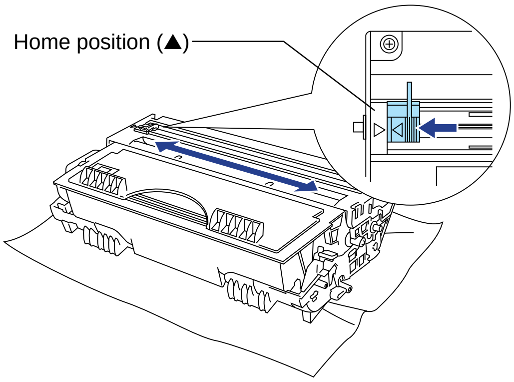


Fig. 5-7

4) Return the cleaner to the home position.

> ***CAUTION:***
> *Make sure that the wire cleaner on the drum unit is returned to the home position (▲ mark position) before re-installing the drum unit into the printer, or printed pages may have vertical stripes.*

5) Install the drum unit into the printer.

3.3 Cleaning the Scanner Window

When replacing the drum unit or toner cartridge with a new one, be sure to clean the scanner window.

1) Turn off the power switch and unplug the power cord.
2) Remove the drum unit from the printer.
3) Gently wipe the scanner window (colored magenta in the figures below) with a soft dry cloth.

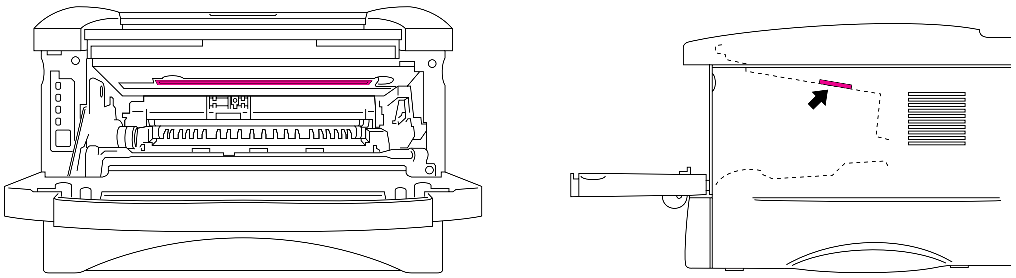


Fig. 5-8

> ***CAUTION:***
> - *Do not touch the scanner window with your fingers.*
> - *Do not wipe the scanner window with cleaning alcohol (isopropyl).*

3.4 Clean the Electrical Terminals

To obtain the best print performance, be sure to clean the electrical terminals inside the printer body.

1) Turn off the power switch and unplug the power cord.
2) Remove the drum unit from the printer.
3) Wipe the electrical terminals as shown in the figure below with a soft dry cloth.

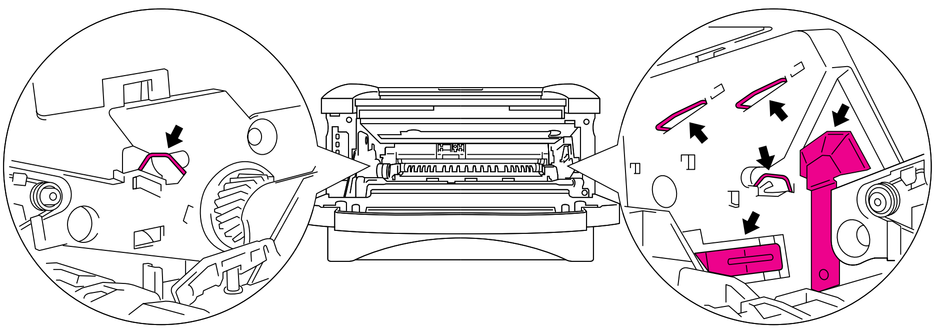


Fig. 5-9

4. MTBF / MTTR

The meantime between failure (MTBF) and the meantime to repair (MTTR) for this printer are as follows;

MTBF: Up to 4,000 hours

MTTR: Average 30 minutes

CHAPTER6 TROUBLESHOOTING

1. INTRODUCTION

1.1 Initial Check

(1) Operating environment

Check if :

- The source voltage stays within ±10% from the rated voltage shown on the rating plate.
- The printer is installed on a solid, level surface.
- The room temperature is maintained between 10°C and 32.5°C. The relative humidity is maintained between 20% and 80%.
- The printer is not located in a dusty place.
- The printer is not exposed to ammonia fumes or other harmful gases.
- The printer is not located in a hot or humid area (such as near water or a humidifier).
- The printer is not exposed to direct sunlight.
- The room is well-ventilated.
- The printer is not placed where the ventilation hole of the printer is blocked.

(2) Print paper

Check if :

- A recommended type of print paper is being used. [If the paper is too thick or too thin, or tends to curl, paper jams or paper feed problems may occur, or printed images may be blurred.]
- The print paper is damped. [If so, use fresh paper, and check whether the print quality improves or not.]
- The print paper is short-grained paper or acid paper. [If so, print quality problems may occur.]

For further information on paper, refer to subsection 3.5 'Paper' in CHAPTER 1.

(3) Consumable parts

Check if :

- The Toner LED is not lit on the printer control panel when a toner cartridge is installed in the printer. [If the LED is lit, replace the cartridge with a new one.]

For further information on consumable parts, refer to Section 1 'Consumable Parts' in CHAPTER 5.

(4) Others

Condensation:
When the printer is moved from a cold room into a warm room in cold weather, condensation may occur inside the printer, causing various problems as listed below:

- Condensation on the optical surfaces such as the scanning mirror, lenses, the reflection mirror and the protection glass may cause the print image to be light.
- If the photosensitive drum is cold, the electrical resistance of the photosensitive layer is increased, making it impossible to obtain the correct contrast when printing.

- Condensation on the corona unit may cause corona charge leakage.
- Condensation on the hopper plate and separation pad may cause paper feed troubles.

If condensation has occurred, print several pages or leave the printer for 2 hours to allow it to reach room temperature.

If the drum unit is unpacked soon after it is moved from a cold room to a warm room, condensation may occur inside the unit, which may cause incorrect images. Instruct the user to allow the unit to come to room temperature before unpacking it. This will take one or two hours.

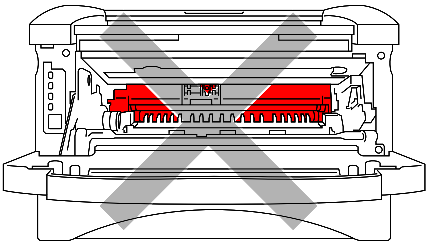
1.2 Warnings for Maintenance Work

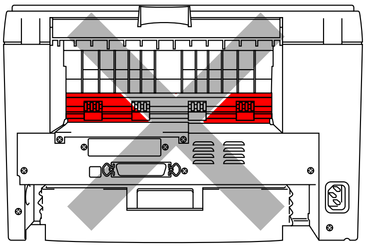
To avoid creating secondary problems by mishandling, follow the warnings below during maintenance work.

WARNING

(1) Always turn off the power switch and unplug the power cord from the power outlet before accessing any parts inside the printer.

(2) Some parts inside the printer are extremely hot immediately after the printer is used. When opening the front cover or rear cover to access any parts inside the printer, never touch the red colored parts shown in the following figures.



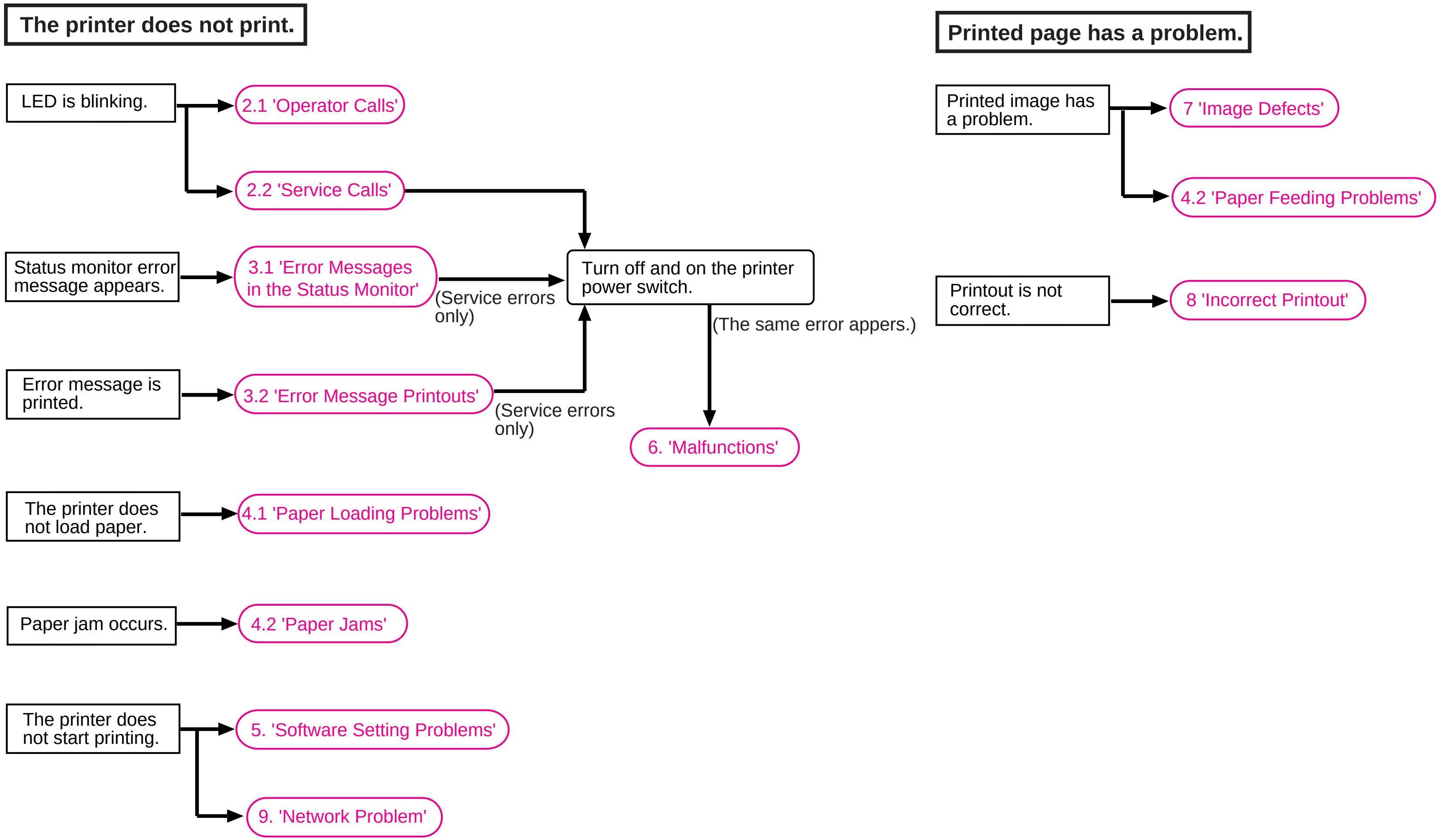


1.3 Identify the Problem

If you encounter any printer error or problem, first identify it referring to the chart below, then see the appropriate section.

NOTE:

The following troubleshooting sections contain both the actions which users should take or check and the ones which service technicians should perform.



2. OPERATOR CALLS & SERVICE CALLS

2.1 Operator Calls

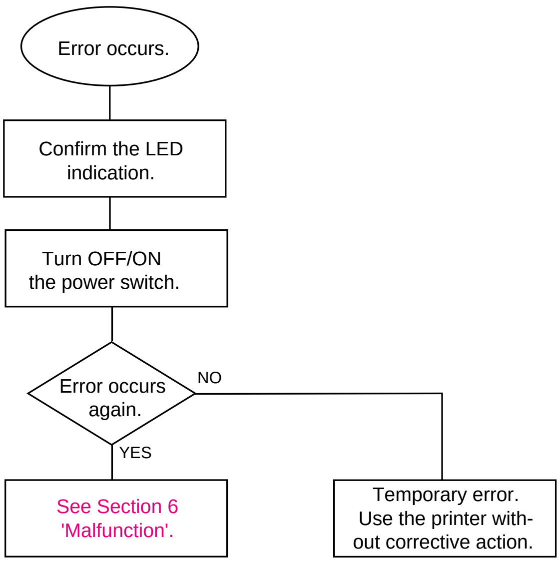
An 'operator call' which the printer indicates on the LEDs is user recoverable. Identify the error from the table below and take the corrective action described for each indication to correct it. The printer automatically recovers from most errors, but it may also be necessary to reset the printer with the control panel button.

LED Indication	Error	Remedy
Alarm LED is blinking.	Cover open	Close the front cover. If the error is not cleared even after closing it, open the cover once and close it again. The error may occur because of the laser BD malfunction. Refer to 'M-7 BD failure' in Section 6.
Ready & Alarm LEDs are blinking.	Paper jam	Clear the jammed paper inside the printer. Press the panel button if the printer does not automatically resume printing.
	No paper	Load paper into the printer and press the panel button.
	Misfeed	Re-install the paper and press the panel button.
Alarm & Data LEDs are blinking. (every 5 seconds)	Toner low	Indicates that the toner cartridge is nearly empty. Purchase a new toner cartridge in order to be ready for when the 'toner empty' message is indicated.
Alarm & Data LEDs are ON.	Toner empty	Replace the toner cartridge with a new one.

2.2 Service Calls

When the printer indicates the need for a service call by illuminating all the LEDs and then a combination of LEDs alternately as shown in the table on the next page, a user unrecoverable error may have occurred.

Instruct the user to turn off the power switch, wait a few seconds and then turn it on again and try to print again. If the error is not cleared and the same service call appears, see Section 6 'Malfunctions' to take the corrective action.



PR99180

Type of error	Drum	Ready	Alarm	Data	Remedy
Fuser Malfunction	O				See 'M-9 Fuser failure'.
Laser BD Malfunction		O			See 'M-7 BD failure'.
Scanner Malfunction	O	O			See 'M-8 Scanner failure'.
ROM Error			O		See 'M-10 ROM error'.
D-RAM Error	O		O		See 'M-10 D-RAM error'.
Service A *		O	O		See 'M-11 Service A'.
Service B *	O	O	O		See 'M-11 Service B'.
Engine Interface Error				O	See 'M-12 Engine interface error'.
Main Motor Malfunction		O	O	O	See 'M-3 Main motor does not rotated'.
NV-RAM Error	O		O	O	See 'M-10 NV-RAM error'.
CPU Runtime Error *	O	O	O	O	See 'M-11 CPU runtime error'.
PCI Bus Error			O	O	See 'M-13 PCI bus error'.

* Refer to the further description of these errors as follows;

- Service A: Address Error
- Service B: Bus Error
- CPU Runtime Error: A CPU error other than the above two defects, such as an Illegal Instruction or Operation Overflow

<u>How the LEDs indicate an error</u>

ex. Fuser Malfunction

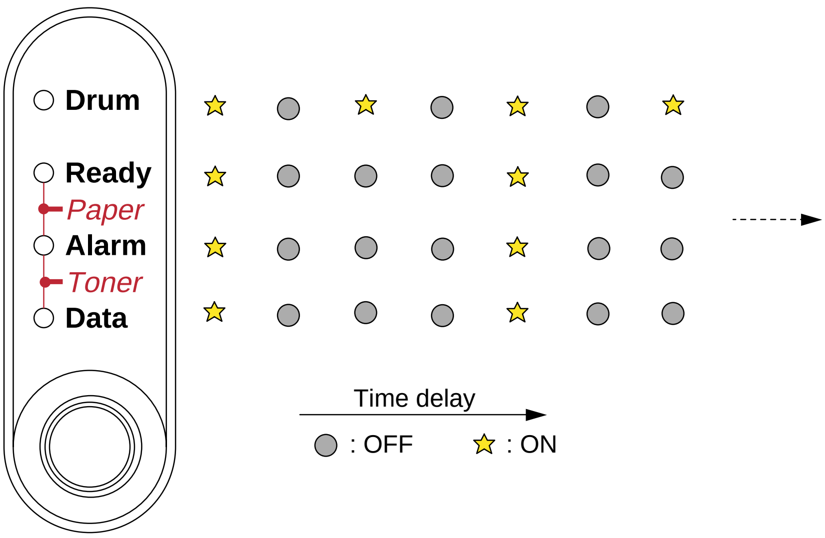


Fig. 6-1

3. ERROR MESSAGES

3.1 Error Messages in the Status Monitor

The status monitor will report problems with the printer as defined in the following table. Take the corrective actions for the error message the status monitor reports.

Error Message	Remedy
COVER OPEN	Close the front cover. If the front cover is half-opened, the error may not be cleared even after closing it. In that case, open the cover once and close it again.
NO PAPER or MISFEED	(1) Load paper into the paper cassette properly. (2) If paper is empty, load a new stack of paper into the cassette. (3) Check that paper in the cassette is straight. If it is curled, straighten it before printing. Sometimes it is helpful to remove the paper, turn the stack over and put it back into the paper cassette. (4) Reduce the amount of paper in the cassette. Keep paper loads below 27mm in depth. (5) Check that the paper is a specified type of paper.
PAPER JAM	Clear the jammed paper inside the printer. Press the panel button if the printer does not automatically resume printing.
TONER LOW	Indicates that the toner cartridge is nearly empty. Purchase a new toner cartridge in order to be ready for when the 'toner empty' message is indicated.
TONER EMPTY	Replace the toner cartridge with a new one.
PRINT OVERRUN	(1) Press the panel button to print the data remaining in the printer. (2) Reduce the complexity of the document or reduce the print resolution. (3) (For HL-1250/1270N only) Expand the printer memory by adding a commercially available SIMM. Set page protection to ON by using the supplied Windows® driver or RPC program. (4) (For HL-1250/1270N only) Change the following settings in the supplied Windows® driver and try again. The best combination of settings below will vary depending on the document. Graphics Mode / True Type™ mode / Use Printer TrueType™ Fonts
MEMORY FULL	(1) Press the panel button to print the data remaining in the printer. (2) Reduce the complexity of the document. (3) (For HL-1250/1270N only) Expand the printer memory by adding a commercially available SIMM.
RESOLUTION ADAPTED (The printer has printed the document at a reduced resolution.)	(1) Reduce the complexity of the document before printing to prevent automatic reduction of the resolution. (2) (For HL-1250/1270N only) Expand the printer memory by adding a commercially available SIMM.

Error Message	Remedy
FUSER MALFUNCTION	Turn the power switch off, wait a few seconds and then turn it on again. Leave the printer for 10 minutes with power on. If the same error occurs again, see 'M-9 Fuser failure'.
LASER BD MALFUNCTION	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-7 BD failure'.
SCANNER MALFUNCTION	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-8 Scanner failure'.
D-RAM ERROR	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-10 ROM error / D-RAM error / NV-RAM error'.
NV-RAM ERROR	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-10 ROM error / D-RAM error / NV-RAM error'
MAIN MOTOR ERROR	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-3 Main motor does not rotate'.
ENGINE INTERFACE ERROR	Turn the power switch off, wait a few seconds and then turn it on again. If the same error occurs again, see 'M-12 Engine interface error'.

3.2 Error Message Printouts

The printer will report problems by printing an error message as defined in the following table. Take the corrective actions for the error message the Printout reports.

Error Message	Remedy
MEMORY FULL	(1) Press the panel button to print the data remaining in the printer. (2) Reduce the complexity of the document. (3) (For HL-1250/1270N only) Expand the printer memory by adding a commercially available SIMM.
PRINT OVERRUN	(1) Press the panel button to print the data remaining in the printer. (2) Reduce the complexity of the document or reduce the print resolution. (3) (For HL-1250/1270N only) Expand the printer memory by adding a commercially available SIMM. Set page protection to ON by using the supplied Windows® driver or RPC program. (4) (For HL-1250/1270N only) Change the following settings in the supplied Windows® driver and try again. The best combination of settings below will vary depending on the document. Graphics Mode / True Type mode / Use Printer TrueType Fonts
RESOLUTION ADAPTED (The printer has printed the document at a reduced resolution.)	(1) Reduce the complexity of the document before printing to prevent automatic reduction of the resolution. (2) (For HL-1250/1270N only) Expand the printer memory by adding a commercially available SIMM.
SERIAL INTERFACE FRAMING ERROR (HL-1250 only)	(1) Press the panel button to resume printing. (2) Check the communication parameter settings* such as baud rate and stop bit on both the PC and printer are the same.
SERIAL INTERFACE PARITY ERROR (HL-1250 only)	(1) Press the panel button to resume printing. (2) Check the communication parameter settings* such as bit length and parity on both the PC and printer are the same.
SERIAL INTERFACE OVERRUN ERROR (HL-1250 only)	(1) Press the panel button to resume printing. (2) If the error occurs again, the RS-100M interface hardware may be damaged. Replace the RS-100M.
SERIAL INTERFACE INPUT BUFFER OVERFLOW (HL-1250 only)	(1) Press the panel button to resume printing. (2) Check the communication parameter settings* such as the handshake protocols on both the PC and printer are the same. (3) If the error occurs again, the RS-100M interface hardware may be damaged. Replace the RS-100M.

**NOTE:*

The communication parameter settings are printed on the Print Configuration sheet. For details on how to print the Print Configuration sheet, see *Section 1 'Print Configuration' in Appendix 4.*

4. PAPER PROBLEMS

When any paper related problem occurs, ensure that the paper used meets the recommended paper specifications referring to Subsection 3.5 'Paper' in CHAPTER 1.

4.1 Paper Loading Problems

Problem	Remedy
The printer does not load paper.	(1) Check that paper in the paper cassette is straight. If it is curled, straighten it before printing. Sometimes it is helpful to remove the paper, turn the stack over and put it back into the paper cassette. (2) Reduce the amount of paper in the cassette. Keep paper loads below 27mm in depth. (3) Check that manual feed mode is not selected in the printer driver.
The printer does not load paper from the manual feed slot.	(1) Re-install the paper firmly into the manual feed slot, one sheet at a time. (2) Check that manual feed mode is selected in the printer driver.
The printer will not load envelopes.	Check that envelopes are loaded into the manual feed slot. The application software must be set up correctly to print on the envelope size you are using.
The printer does not print into the output tray.	Close the rear cover.
The printer does not print on the specified paper. (HL-1250/1270N with optional lower tray unit only)	(1) Check that the Lower tray cable is connected to the printer. (2) Check that the appropriate printer driver is selected.

4.2 Paper Jams

4.2.1 Clearing jammed paper

Clear the jammed paper following the procedures below;

(1) Remove the paper cassette completely from the printer.

(2) Pull any jammed paper up and out of the printer.(Fig. 6-2)

(3) Open the front cover.

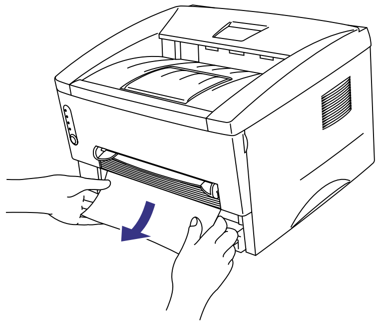


Fig. 6-2

(4) Remove the drum unit assembly. Pull any jammed paper up and out of the printer.
Do not remove the drum unit assembly with additional force at this time if you cannot remove it easily. Instead, pull the edge of the jammed paper from the underneath of the printer.

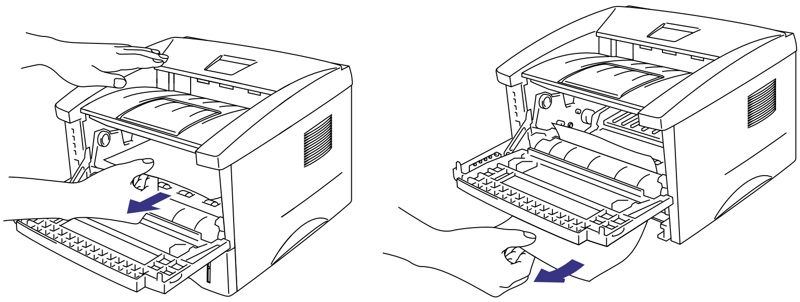


Fig. 6-3

(5) Open the rear cover and pull the jammed paper out of the fixing unit. If you have to pull the paper towards the back of the printer, the fuser may get dirty with toner powder and may result in toner scatter on the next printed page or pages. Print a few copies of the test page until the toner scatter on the printed pages stops. (Fig. 6-4)

(6) Close the rear cover.

(7) Install the drum unit assembly and the paper cassette, then close the front cover.

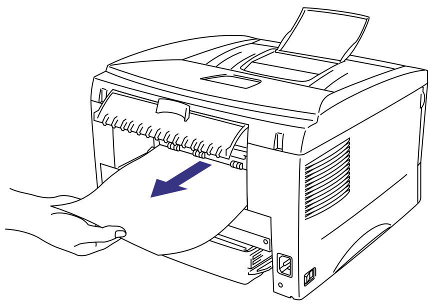


Fig. 6-4

NOTE:

If the jammed paper is removed completely, install the paper cassette first, then close the front cover and the printer will resume printing automatically. If the printer does not resume printing automatically, press the control panel button.

4.2.2 Causes & countermeasures

The causes for paper jam problems vary depending on the location of the paper jam. When a paper jam occurs inside the printer, you have to find the location of the paper jam first, remove the jammed paper and then take the appropriate countermeasure referring to the table below;

Problem	Type of Jam	Cause	Remedy
Jam when the printer is turned on.	Paper stuck	The front registration sensor or paper eject sensor is turned on.	Remove the paper inside the printer. If there is no paper, check the suspect sensors referring to NOTE.
Top of paper stopped at 230mm from the second exit roller. Next paper is not fed.	Jam caused by paper length detected as longer than 400mm (16 in).	The front registration sensor is not returning properly and is not turning off.	Check front registration sensor motion referring to NOTE.
Bottom of paper stopped around the transfer roller.	Jam caused by paper length detected as shorter than 80mm.	The front registration sensor was turned off early. Malfunction of actuator or hardware noise.	Check the front registration sensor referring to NOTE.
Top of paper stopped between the paper feed roller and the pick-up roller.	Jam caused by a paper feed delay.	Paper was not fed in at the proper timing due to paper dust or wear of the rubber pick-up roller.	Remove the paper dust attached to the pick-up roller. If the rubber is worn out, replace it with a new one.
Top of paper stopped at 35mm from the contact point of the heat roller and pressure roller.	Jam caused by the paper sensed as not being ejected from the paper eject sensor.	The paper eject sensor is not working properly and has not turned off. (single printing)	Check sensor motion referring to NOTE.
Top of paper stopped at 30 - 40mm from the contact point of the heat roller and pressure roller. Jammed paper is not printed at all.	Jam caused by incorrect paper pick up.	The surface of the separation pad or the pick-up roller is dirty or worn out.	1) Clean the surface of the separation pad or pick-up roller. 2) Replace the separation pad or pick-up roller.
Jam after paper is ejected.	Jam caused by the paper sensed as not being ejected from the paper eject sensor.	The paper eject sensor or front registration sensor is not working properly and has not turned off. (continuous printing)	Check sensor motion referring to NOTE.

NOTE:
How to check the sensors:
1) *Turn off the printer power switch, open the front cover, and remove the drum unit.*
2) *Turn on the printer while pressing the control panel button. The Drum LED comes ON.*
3) *Lightly press the panel button again.*
   → *Alarm LED is ON = Front registration sensor is turned ON.*
4) *Press and release the panel button again.*
   → *Drum LED is ON = Paper eject sensor is turned ON.*

For details on the sensors, see 'Factory inspection mode' in Subsection 10.2.

4.3 Paper Feeding Problems

Even if the paper is printed and ejected without any problems such as paper jams, paper feeding problems below may appear.

Users can clear these problems by following the ‘User Check’ items for each problem. Even if the same problem occurs again, follow the procedures in the table below.

F-1	Double feeding

User Check

Check the paper used meets the recommended paper specifications.

Possible cause	Step	Check	Result	Remedy
Separation pad	1	Is the surface of the separation pad worn out?	Yes	Replace the separation pad.

F-2	Wrinkles or creases

User Check

(1) Check that paper is loaded into the paper cassette correctly.

(2) Check the paper used meets the recommended paper specifications.

(3) Try printing using the straight-through output path.

(4) Turn over the stack of paper in the cassette or try rotating the paper 180° in the cassette.

Possible cause	Step	Check	Result	Remedy
Paper	1	Is the problem solved if new paper is used?	Yes	Instruct the user how to store paper so that it does not absorb moisture.
Fixing unit entrance guide	2	Is the entrance guide dirty?	Yes	Clean the entrance guide.
Fixing unit	3	Is the pressure roller dirty?	Yes	Clean the pressure roller.
			No	Replace the fixing unit.

F-3	Page skew

User Check

(1) Check that the paper or other media is loaded into the paper cassette correctly and that the paper guides are not too tight or too loose against the paper stack.

(2) If using the manual feed slot, check how to load paper into the manual feed slot correctly.

(3) The paper cassette may be too full. Load paper below 27mm in depth.

(4) Check the paper used meets the recommended paper specifications.

F-4	Curl or Wave

User Check

(1) Check the paper used meets the recommended paper specifications. Both high temperature and humidity will cause paper to curl.

(2) If the printer is used infrequently, the paper may have sat for too long in the paper cassette. Turn over the stack of paper in the paper cassette. Also, try rotating the paper 180° in the paper cassette.

(3) Try printing using the straight-through output path.

NOTE:
For no paper supplied as the cause of a malfunction, see 'M-4 No paper supplied' in Section 6 'Malfunctions'.

5. SOFTWARE SETTING PROBLEMS

The printer may not print the data correctly if there are incorrect software settings.

S-1	"There was an error writing to LPT1: (or BRUSB) for the printer" error message appears.

User Check

(1) Check that the printer cable is not damaged or broken. Check also that the cable is connected to the correct interface connectors of both the printer and PC.

(2) Check that the correct printer is selected if you have an interface switching device.

(3) Check that the appropriate printer driver is selected as 'Set as Default'. Check also that the correct print port is set for the selected printer driver.

(4) Check that the printer is not connected to the same port which is also connected to a mass storage device or scanner. Remove all other devices and connect the port to the printer only. Turn off the printer status monitor in the device options tab in the printer driver.

(5) If the print port is set as an ECP port, change it to a normal port.

(6) Try printing the test page referring to Subsection 10.1 'Test Print Mode' in this chapter.

(7) Try resetting the factory settings.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 10.1 'Test Print Mode' in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC and printer cable?	No	Replace the main PCB.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

S-2	Unable to print from application software with the serial interface. (HL-1250 only)

User Check

Check that the slide switch of the serial interface is in the correct position and the serial interface setting are correctly set up with the DIP switches.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 10.1 'Test Print Mode' in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC, printer cable and RS-100M?	No	Replace the main PCB.
RS-100M failure	3	Is it possible to print with another PC and cable?	No	Replace the RS-100M.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

S-3	Unable to print from application software under DOS.

User Check

(1) Check that the DOS application software interface settings match that of your printer.

(2) Check if the printer has any printer alarms active.

(3) Check if the appropriate printer is selected in your application software.

(4) (HL-1250 only) If the serial interface is used, check that the RS-232C serial interface is selected with the slide switch. Check that the interface settings are correctly set up with the proper DIP switches. Check that the serial parameters of baud rate, parity and stop bits match between your application software and the printer.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 10.1 'Test Print Mode' in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC and printer cable?	No	Replace the main PCB.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

NOTE:

If this problem appears when using the RS-100M, follow the procedures in "S-2" on this page.

S-4	Unable to print from application software with an Apple Macintosh Computer. (HL-1250 only)

User Check

(1) Check that the supplied Macintosh printer driver is installed in the System Folder and it is selected with Chooser.

(2) Check the PORT selection within the Chooser. It should match the port to which you physically attached the printer cable.

(3) Check that the serial slide switch of the optional interface board is in the Apple (RS-422A) position.

(4) Check the printer cable type: you cannot use a Local Talk or straight-through cable.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 10.1 'Test Print Mode' in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC, printer cable and RS-100M?	No	Replace the main PCB.
RS-100M failure	3	Is it possible to print with another PC and cable?	No	Replace the RS-100M.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

S-5	Although the USB driver is installed, it is unable to find the BRUSB: port. (HL-1240/1250/1270N only)

User Check

(1) Re-install the USB driver by following the steps below;
  i) Double-click the file "DeinsUSB.exe" in the USB directory of the CD-ROM or the floppy disk.
  ii) Turn the printer off and on again.
  iii) "Add New Hardware Wizard" is launched again, follow the instructions in the Wizard to re-install the driver.

(2) Try to connect the printer directly to the computer if it is connected through a network.

Possible cause	Step	Check	Result	Remedy
Computer settings	1	Does 'Universal Serial Bus Controllers' appear in the Device Manager tab of 'System Properties' in Control Panel?	No	This problem can be caused by your computer settings. See the computer manual.
USB cable / printer damage	2	Does the 'BRUSB' port appear in the Device Manager tab of 'System Properties' in Control Panel?	No	The USB cable is damaged. Replace the cable. If the same problem appears, the printer will be damaged.

S-6	This printer does not appear in Chooser with iMac and Power Macintosh G3 with USB. (HL-1240/1250/1270N only)

User Check

(1) Check the printer is turned on.

(2) Check the USB interface cable is connected correctly.

(3) Check the printer driver is installed correctly.

Possible cause	Step	Check	Result	Remedy
Printer connection	1	Select ‘Apple System Profiler’ in Apple Menu. Are the following items indicated in the USB box of the Device and Volumes tab? • Product ID: 6*($6) (for HL-1240), 7*($7) (for HL-1250) or 8*($8) (for HL-1270N). • Vender: Brother International Corporation (or 0x4f9)	No	Check the printer is turned on and the USB interface cable is connected correctly. Check that the USB cable used is the shielded twisted pair type and 5 m or less. Try to connect the printer and PC with the USB cable directly.
Driver installation	2	Are there the following files in the Extensions Folder of System Folder? <For System 8.6 or higher> • BR_Backgrounder • BR_PrintMoniter(USB) • HL-1200/MFL Pro • USBPrintDriver <For System 8.1, 8.5, 8.51> • BR_Backgrounder • BR_PrintMoniter(USB) • HL-1200/MFL Pro • USBPrintDriver(BR6*) • USBPrintDriver(BR7*) • USBPrintDriver(BR8*) • USBPrintDriver(BR9*) • USBPrintDriver(BRA*) • USBPrintDriver(BR100*)	No	Try to re-install the printer driver.
			Yes	Turn off the printer and PC power switch, and check all connections between them. Then, turn them on again.

**NOTE:*
The value or alphabet following ‘BR’ is a product ID.

6. MALFUNCTIONS

When taking countermeasures for malfunctions as described in this section, check connectors for contact failure before measuring the voltage at the specified connector pins.

M-1	No AC power supplied

Possible cause	Step	Check	Result	Remedy
Supply voltage	1	Is the correct voltage present at the outlet?	No	Inform the user that the correct voltage is not supplied at the outlet.
Power plug	2	Is the power cord securely plugged into the outlet?	No	Plug the power cord securely into the outlet.
Fuse (F1, F2)	3	Is the fuse blown?	Yes	If the fuse blows again immediately after replacing the low-voltage power supply PCB, check that there is not a short circuit somewhere in the AC power supply line.
Wiring	4	Unplug the power supply plug. Is there a broken wire between the AC input connector of the low-voltage power supply and the power plug?	Yes	Replace the AC power cord.

M-2	No DC power supplied

<table>
<tr><th>Possible cause</th><th>Step</th><th>Check</th><th>Result</th><th>Remedy</th></tr>
<tr><td>AC power supply</td><td>1</td><td>Is AC power supplied between connectors CN1-L and CN1-N when the power plug is plugged into the outlet?</td><td>No</td><td>Follow the same check procedure of M-1 “No AC power supplied”.</td></tr>
<tr><td>Wiring, DC load</td><td>2</td><td rowspan="2">Turn off the power switch and disconnect the P3 and P5 connectors on the engine PCB. Turn on the power again. Measure the voltages between the terminals. Do the measured voltage satisfy the prescribed valued in the table below?
<table>
<tr><th>PCB</th><th>+ lead pin</th><th>- lead pin</th><th>Voltage</th></tr>
<tr><td rowspan="2">Engine</td><td>P5-2</td><td>P5-3</td><td>Approx. 24V</td></tr>
<tr><td>P3-10</td><td>P3-9</td><td>Approx. 5V</td></tr>
</table></td><td>Yes</td><td>Turn off the power switch, reconnect the connector and turn the power switch on again. If the protector circuit is activated, check the connector, the wiring from the connector, and the DC load.</td></tr>
<tr><td>Low-voltage power supply PCB</td><td>3</td><td>No</td><td>Replace the low-voltage power supply PCB.</td></tr>
</table>

WARNING

If you analyze malfunctions with the power plug inserted into the power outlet, special caution should be exercised even if the power switch is OFF because it is a single pole switch.

M-3	Main motor does not rotate

Possible cause	Step	Check	Result	Remedy
Failure of connector	1	Is the connection of connector P9 on the engine PCB correct?	No	Reconnect the connector.
Main motor	2	Is the problem solved by replacing the main motor?	Yes	Replace the main motor.
Engine PCB	3	Is the problem solved by replacing the engine PCB?	Yes	Replace the engine PCB.
Main PCB	4	Is the problem solved by replacing the main PCB?	Yes	Replace the main PCB.

M-4	No paper supplied

Possible cause	Step	Check	Result	Remedy
Failure of connector	1	Is the contact of the solenoid connector on the engine PCB good?	No	Reconnect the connector.
Engine PCB circuit	2	Set paper in the manual paper slot and make a test print by pressing the control panel button.	Yes	Replace the engine PCB.
Paper pick-up clutch solenoid		Does the voltage between pins 2 (SOLENOID) and 1 (24V) of the P13 connector on the engine PCB change from approx. 24V DC to 0V within the specified time?	No	Replace the paper pick-up solenoid.
Separation pad / pick-up roller failure	3	Is the surface of the separation pad or the pick-up roller dirty or worn out?	Yes	1) Clean the surface of the separation pad or pick-up roller. 2) Replace the separation pad or pick-up roller.
Main PCB	4	Is the problem solved by replacing the main PCB?	Yes	Replace the main PCB.

M-5	Insufficient output from high-voltage power supply unit

Possible cause	Step	Check	Result	Remedy
High-voltage contact	1	Do any of the terminals on the high-voltage contacts have dirt or contact burns?	Yes	Clean the terminals.
High-voltage power supply PCB	2	Check the connections of the connector between the high-voltage power supply and the engine PCB are secured correctly.	Yes	Replace the high-voltage power supply PCB
			No	Reconnect the connector between the high-voltage power supply and the engine PCB.

M-6	Fixing heater temperature failure

Possible cause	Step	Check	Result	Remedy
Poor thermistor harness contact	1	Is the contact of connector P6 on the engine PCB good?	No	Reconnect the connector.
Blown thermal fuse	2	Remove the fixing unit and measure the resistance of the thermistor. Is it open circuit?	Yes	Replace the fixing unit.
Thermistor failure	3	Is the thermistor installed properly?	Yes	Replace the fixing unit.
			No	Reinstall the thermistor properly.
Halogen heater lamp failure	4	Remove the fixing unit and measure the resistance of the halogen heater lamp. Is it open circuit?	Yes	Replace the halogen heater lamp.

M-7	BD failure

Possible cause	Step	Check	Result	Remedy
Harness connection failure	1	Is connector P10 on the main PCB secured correctly?	No	Reconnect the connector securely.
			Yes	Replace the laser unit.

M-8	Scanner failure

Possible cause	Step	Check	Result	Remedy
Harness connection failure	1	Is the connection of the scanner motor connector P12 on the engine PCB secure?	No	Reconnect the connector securely.
Power supply input	2	Is the voltage between pins 1 (+24V DC) and 2 (GND) of connector P12 on the engine PCB 24V DC?	No	Check if +24V DC is supplied between pins 2 (+24V DC) and 3 (+24V RET) of connector P5 on the engine PCB. If not, check the power supply output on the low-voltage power supply PCB.
			Yes	Replace the laser unit.

M-9	Fuser failure

Possible cause	Step	Check	Result	Remedy
Poor thermistor harness contact	1	Is the contact of connector P6 on the engine PCB good?	No	Reconnect the connector.
Blown thermal fuse	2	Remove the fixing unit and measure the resistance between the input connectors. Is it open circuit?	Yes	Replace the fixing unit.
Thermistor failure	3	Is the thermistor installed properly?	Yes	Replace the fixing unit.
			No	Reinstall the thermistor properly.
Halogen heater lamp failure	4	Remove the fixing unit and measure the resistance of the halogen heater lamp. Is it open circuit?	Yes	Replace the halogen heater lamp.
Heater harness connection failure	5	Is the heater harness connector connected to the low-voltage power supply PCB and fixing unit secure?	No	Reconnect the connectors securely.

NOTE:

- *This problem will be cleared if leaving the printer power ON for ten minutes.*
- *If the heater is cooled down sufficiently, this problem may be cleared by turning on the printer power switch while pressing the panel button.* ***Be warned, however, that this operation will melt the fixing unit if the heater is hot.***

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M-10	ROM error / D-RAM error / NV-RAM error

Possible cause	Step	Check	Result	Remedy
Main PCB	1	Is it possible to print the test page with the method of Subsection 10.1 'Test Print Mode' in this chapter?	No	Replace the main PCB.
Software bug	2	Does this problem appear when printing specific data or printing under a specific environment?	Yes	Inform the Brother office of the used specific data, printer condition and system environment.

M-11	Service A (Address error) / Service B (BUS error) / CPU runtime error

Possible cause	Step	Check	Result	Remedy
Main PCB	1	Is it possible to print the test page with the method of Subsection 10.1 'Test Print Mode' in this chapter?	No	Replace the main PCB.
Software bug	2	Does this problem appear when printing specific data or printing under a specific environment?	Yes	Inform the Brother office of the used specific data, printer condition and system environment.

M-12	Engine interface error

Possible cause	Step	Check	Result	Remedy
Fixing unit ground wire connection	1	Is the ground wire on the fixing unit secured with the shoulder screw correctly?	No	Secure the ground wire correctly with the shoulder screw.
Harness connection failure	2	Is the connection between connector P6 on the main PCB and connector P3 on the engine PCB secure?	No	Reconnect the connectors securely.
Engine PCB	3	Is the problem solved by replacing the engine PCB?	Yes	Replace the engine PCB.
Main PCB	4	Is the problem solved by replacing the main PCB?	Yes	Replace the main PCB.

M-13	PCI BUS error (HL-1270N only)

Possible cause	Step	Check	Result	Remedy
Harness connection failure	1	Is the connection between connector P21 on the main PCB and connector P1 on the network board secure?	No	Reconnect the connectors securely.
Network board	2	Is the problem solved by replacing the network board?	Yes	Replace the network board.
Main PCB	3	Is the problem solved by replacing the main PCB?	Yes	Replace the main PCB.

7. IMAGE DEFECTS

7.1 Image Defect Examples

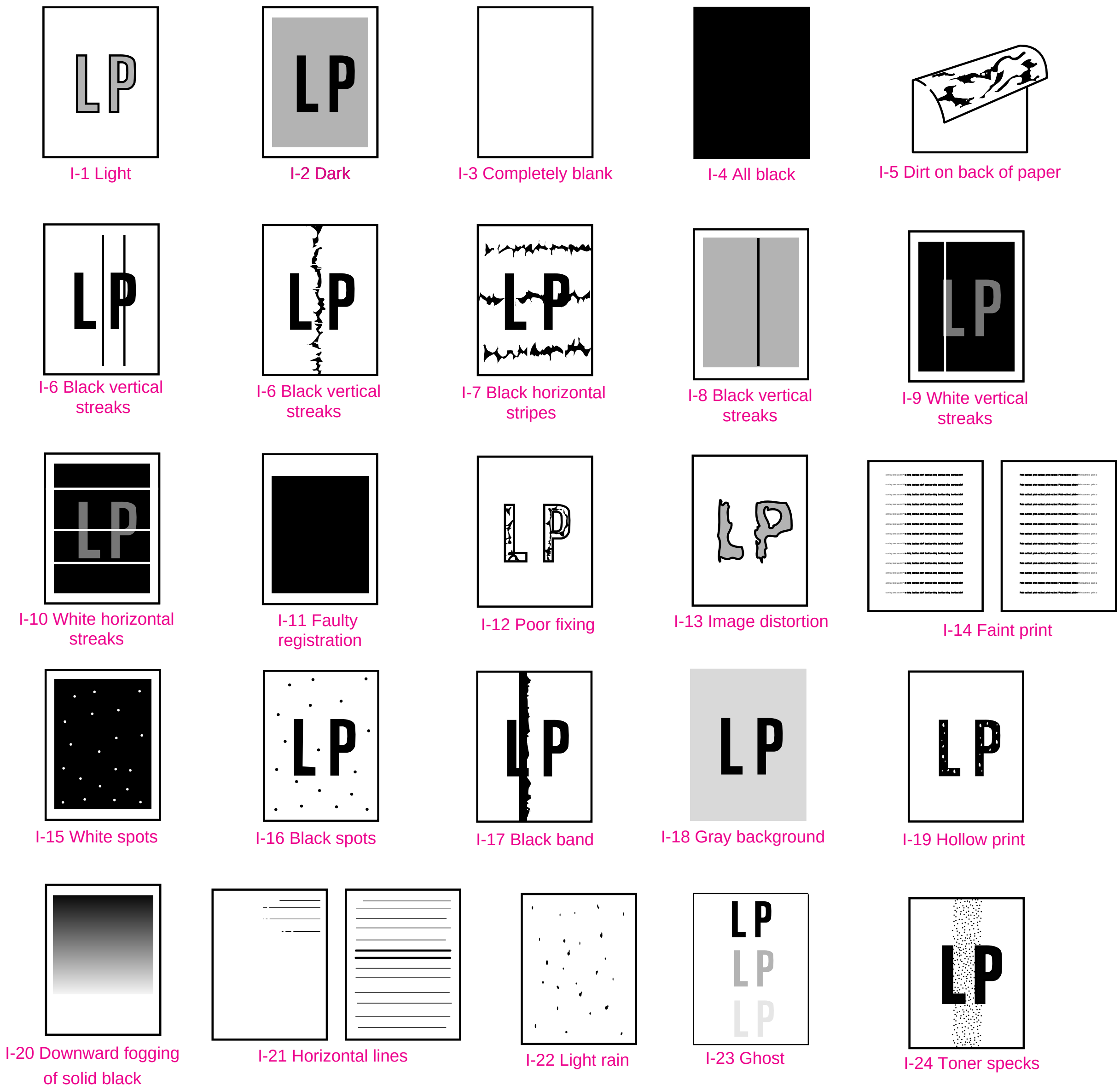


Fig. 6-5

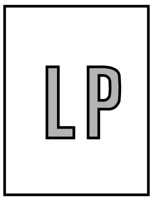
7.2 Troubleshooting Image Defect

Several types of the image defects can be cleared by end users. For those defects, instruct the user to check the 'User Check' items described in each table. Even if the same image defect appears, the following procedures should be followed in the event of specific image defects.

See also Subsection 7.3 for information about the location of the grounding contacts.

> **CAUTION:**
> *When using the printer for a special job, such as printing of name cards, print quality cannot be guaranteed.*

I-1	Light



User Check

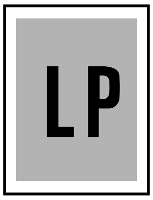
(1) Check the printer's environment. Conditions such as humidity, high temperatures, etc. may cause this situation to occur.

(2) If the whole page is light, toner save mode may be on. Disable toner save mode within Printer Properties tab of the driver.

(3) Try installing a new toner cartridge or drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Toner sensing failure (printer side)	1	Can printing be started with the drum unit and toner cartridge removed?	Yes	Check if the toner sensor is dirty and check the toner sensor connection.	
Toner sensing failure (toner cartridge side)	2	Is the problem solved when 4 or 5 pages are printed after the toner cartridge is replaced with a full one?	Yes	The wiper of the toner cartridge is defective. Replace the toner cartridge.	
Drum connection failure	3	Are all the contacts between the drum unit and printer body connected correctly?	No	Clean contact electrodes both on the drum unit and in the printer body.	①, ④, ⑤, ⑥
High-voltage power supply PCB failure	4	Is the harness connection between the high-voltage power supply PCB and the engine PCB correct?	Yes	Replace the high-voltage power supply PCB.	
Engine PCB / Main PCB failure	5	Is the harness connection between the engine PCB and the main PCB correct?	Yes	Replace the engine PCB or the main PCB.	
Dirt on the scanner window	6	Is there any dirt on the scanner window?	Yes	Wipe it off with a soft clean paper.	
Laser unit failure	7	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.	

I-2	Dark



User Check

(1) Check the paper used meets the recommended paper specifications.

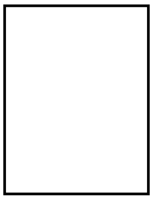
(2) Check the printer's environment. High temperature and high humidity conditions can increase the amount of background shading.

(3) Clean the corona wire with the wire cleaner.

(4) Try installing a new toner cartridge or drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure (contact failure)	1	Are the charge electrodes between the printer body and the drum unit dirty?	Yes	Clean both electrodes.	③
Drum unit failure	2	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit with a new one.	
Toner cartridge failure	3	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge with a new one.	
High-voltage power supply PCB failure	4	Is the connections of the connector between the high-voltage power supply PCB and the engine PCB secured correctly?	Yes	Replace the high-voltage power supply PCB.	
Main PCB failure	5	Are there any disconnected connectors?	No	Replace the main PCB.	
Engine PCB failure	6	Are there any disconnected connectors?	No	Replace the engine PCB.	

I-3	Completely blank



Possible cause	Step	Check	Result	Remedy	Ground contacts
Developing bias contact failure	1	Are the developing bias contacts between the printer body and drum unit dirty?	Yes	Clean the electrodes at both sides.	④
Drum unit	2	Are the drum shaft and drum electrode of the printer body connected correctly?	Yes	Clean the shaft and the electrode.	①
			No	Check the connection between the shaft and the electrode.	①
Drum unit failure	3	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.	
Toner cartridge failure	4	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge with a new one.	
Scanner harness connection failure	5	Is the scanner harness connected securely? (Check if there is any play in the connection.)	No	Reconnect the connector correctly.	
Main PCB failure	6	Are printing signals being input to the laser unit? Is the problem solved after replacing the main PCB?	Yes	Replace the main PCB.	
Laser unit failure	7	Is the scanner interlock lever damaged?	Yes	Replace the laser unit.	
		Is the scanner mirror broken or loose?	No	Replace the high-voltage power supply PCB.	

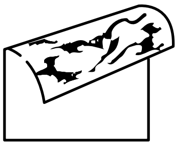
I-4	All black

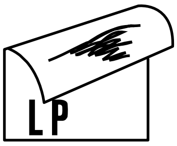


User Check
(1) Clean the corona wire of the drum unit.
(2) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure	1	Is the corona wire dirty?	Yes	Clean the corona wire with the wire cleaner.	②
	2	Is the corona wire broken?	Yes	Replace the drum unit.	
	3	Are the charge electrodes between the printer body and the drum unit dirty?	Yes	Clean both electrodes.	③
Harness connection	4	Is the laser unit connected to the main PCB correctly?	No	Connect the harness between the laser unit and the main PCB correctly.	
High-voltage power supply PCB failure	5	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.	
Main PCB failure	6	Is the problem solved after replacing the main PCB?	Yes	Replace the main PCB.	

I-5	Dirt on the back of paper





Possible cause	Step	Check	Result	Remedy
Fixing unit dirty	1	Is the pressure roller dirty? Is any other area in the printer dirty?	Yes	Clean the pressure roller referring to the following procedure.
Dirt in the drum unit	2	Is the transfer roller dirty? Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit
			No	Replace the high-voltage power supply PCB.

NOTE:

- *This problem may disappear after printing approximately 10 pages of completely blank sheets.*
- *The dirt on the back of paper as shown at the right is caused by toner on the star wheel hooks in the fixing unit. This problem may disappear after printing a few pages.*

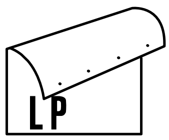


Fig. 6-6

<u>How to clean the pressure roller</u>

Clean the pressure roller as follows;

(1) Set three or more sheets of paper in the paper cassette.

(2) Open the front cover, and turn on the power switch while holding down the control panel button.

(3) Release the panel button when the Drum LED is on.

(4) Close the front cover.

(5) Hold down the panel button until the Ready LED is on, then release the button. Three patterns; grid, zip and solid black are printed.

(6) Turn off the power switch with the front cover closed.

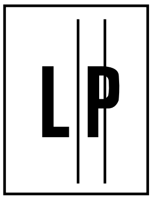
(7) Set paper in the manual feed slot <u>with the solid black side down</u>.

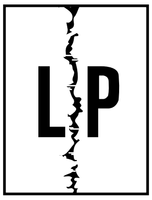
(8) Turn on the power switch while holding down the control panel button.

(9) Release the panel button when the Drum LED is on.

(10) Press the panel button again and release it immediately. A page of test pattern is printed while cleaning the pressure roller.

I-6	Black and blurred vertical streaks





User Check

(1) Clean the corona wire in the drum unit.

(2) Check that the corona wire cleaner is at the home position.

(3) Check that the toner cartridge is not empty.

(4) The drum unit may be damaged. Install a new drum unit.

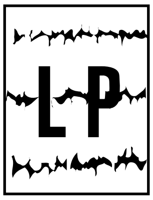
(5) The toner cartridge may be damaged. Install a new toner cartridge.

Possible cause	Step	Check	Result	Remedy
Corona failure	1	Is the vertical block streak about 10mm wide? (Check if the wire cleaner is at its home position.)	Yes	Return the wire cleaner to its home position.
Dirt in the paper feed system	2	Is the paper cassette or feed system on the drum unit dirty with toner?	Yes	Clean the toner off.
Scratch on the drum	3	Is the drum surface scratched?	Yes	Replace the drum unit.
Cleaning failure	4	Is the drum surface dirty with toner in streaks?	Yes	Replace the drum unit.
Scratch on the heat roller	5	Is the surface of the heat roller scratched?	Yes	Replace the fixing unit.

NOTE:

- *If you print the same pattern continuously, the drum will be worn and black vertical streaks will appear on the paper.*
- *This problem may occur with noise due to the corona wire being dirty. In that case, clean the corona wire with the wire cleaner.*

I-7	Black and blurred horizontal stripes



User Check

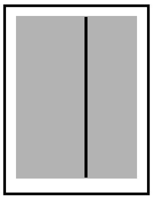
(1) The drum unit may be damaged. Install a new drum unit.

(2) Check the paper used meets the recommended paper specifications.

(3) Clean the printer interior and the corona wire in the drum unit.

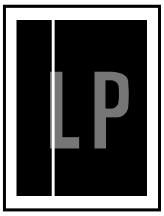
Possible cause	Step	Check	Result	Remedy	Ground contacts
Scratch on the drum	1	Are the horizontal stripes at 94mm (photosensitive drum) intervals?	Yes	The photosensitive drum was scratched. Replace the drum unit.	
Toner stuck on the developer roller	2	Are the horizontal stripes at 39mm (developer roller) intervals?	Yes	After printing several pages, the problem will disappear. If not, replace the toner cartridge.	
Scratch on the heat roller	3	Are the horizontal stripes at 79mm (heat roller) intervals?	Yes	Replace the heat roller.	
Corona contact failure	4	Are the charge electrodes between the printer body and the drum unit dirty?	Yes	Clean both electrodes.	③
High-voltage power supply PCB failure	5	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.	

I-8	Black vertical streaks (in a gray background)



Possible cause	Step	Check	Result	Remedy	Ground contacts
Translucent stain on the scanner window	1	Is there any dirt on the scanner window?	Yes	1) Clean the scanner window. 2) If it is not effective, replace the laser unit.	
Corona failure	2	Is the corona wire dirty?	Yes	Clean the corona wire with the wire cleaner.	②

I-9	White vertical streaks



User Check

(1) Try to wipe the scanner window with a soft cloth.

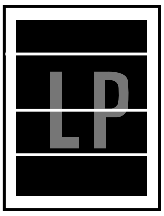
(2) The toner cartridge may be damaged. Install a new toner cartridge.

(3) Check the printer's environment. High temperature and high humidity conditions can cause this problem.

(4) Damp (wet) paper might be used. Try to change to freshly unpacked paper.

Possible cause	Step	Check	Result	Remedy
Transfer failure	1	Is the transfer roller scratched?	Yes	Replace the drum unit.
Condensation	2	Has condensation occurred inside the printer?	Yes	Try to print several pages or leave the printer 2 hours to allow it to reach room temperature.

I-10	White horizontal stripes



User Check

(1) Check the paper used meets the recommended paper specifications. A rough surfaced paper, damp paper or thick media can cause the problem.

(2) Check that the appropriate media type is selected in the printer driver.

(3) The problem may disappear by itself. Try printing multiple pages to clear this problem especially if the printer has not been used for a long time.

(4) The drum unit may be damaged. Install a new drum unit.

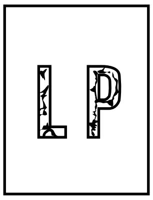
Possible cause	Step	Check	Result	Remedy	Ground contacts
Developing bias contact failure	1	Are the developing bias contacts between the printer body and toner cartridge dirty?	Yes	Clean the electrodes at both sides.	④

I-11	Faulty registration



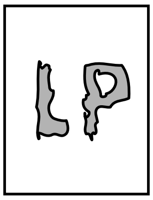
Possible cause	Step	Check	Result	Remedy
Excessive paper load	1	Is the paper loaded in the paper cassette more than 27mm high?	Yes	Instruct the user to keep paper loads below 27mm in depth.
Print paper	2	Is the specified weight of the recommended paper being used?	No	Recommend to use the specified types of paper.
	3	Is the first printing position within ±1mm of the tolerance specification?	Yes	Adjust the Y offset by using the utility software supplied.
Rear resist sensor position incorrect	4	Is the position of the rear registration sensor normal?	No	Reposition the sensor to the correct position.

I-12	Poor fixing



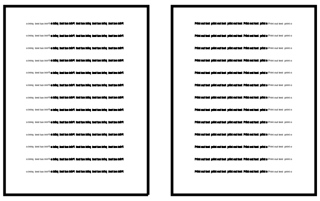
Possible cause	Step	Check	Result	Remedy
Print paper	1	Is thick paper of more than 43lb being used?	Yes	Recommend to use the specified types of paper.
Toner sensing failure (When printing is faint.)	2	Is the problem solved by replacing the drum unit or the toner cartridge?	Yes	1) Toner is empty. 2) The toner sensing is defective. Clean the toner sensor. 3) If the wiper in the toner cartridge is broken, replace the toner cartridge with a new one.
Thermistor failure	3	Is the thermistor fitted correctly?	No	Fit the thermistor correctly.
Low-voltage power supply PCB failure	4	Is the problem solved by replacing the low-voltage power supply PCB?	Yes	Replace the low-voltage power supply PCB.

I-13	Image distortion



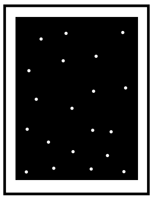
Possible cause	Step	Check	Result	Remedy
Laser unit installation	1	Is the laser unit secured to the frame incorrectly? (Check if there is any play.)	Yes	Secure the unit correctly and tighten the screws.
Scanner LD emission failure Scanner motor rotation failure	2	Is the laser diode or the scanner motor defective?	Yes	Replace the laser unit.
Scanner connection failure	3	Is the scanner harness connected properly? (Check if it is coming loose.)	No	Connect the harness correctly.

I-14	Faint print



Possible cause	Step	Check	Result	Remedy
Printer installation	1	Is the printer placed horizontally?	No	Place the printer on a flat surface.
Toner cartridge	2	Does the problem happened immediately after replacing the toner cartridge with a new one?	Yes	Remove and carefully shake the toner cartridge horizontally.
Scanner window dirty	3	Is the scanner window dirty?	Yes	Clean the scanner window with a soft dry cloth.
Laser unit failure	4	Is the problem solved by replacing the laser unit?	Yes	Replace the laser unit.

I-15	White spots



User Check

(1) If the problem is not solved after printing a few pages, the drum unit may have glue from label stock on the photosensitive drum surface. Refer to Step 1 in the table below and NOTE in the next page.

(2) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy
Drum unit failure	1	Are the white spot at 94mm intervals?	Yes	1) If toner or glue remains stuck, wipe it off gently with a cotton swab. (Refer to NOTE in the next page.) 2) If the drum surface is scratched, replace the drum unit.
Drum unit failure	2	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
No toner	3	Is the toner in the toner cartridge almost empty?	Yes	Replace the toner cartridge with a new one.
Print paper	4	Is the problem solved after changing to specified freshly unpacked paper?	Yes	Damp (wet) paper might be used. Recommend to change freshly unpacked paper.
Environment	5	Does the problem still appear after the printer has warmed up?	Yes	1) Replace the drum unit. 2) Advise the user of the specified print environment.

NOTE:

Clean the drum unit as follows:

(1) Remove the toner cartridge from the drum unit Place the printing samples in front of the drum unit, and find the exact position of the image defect.

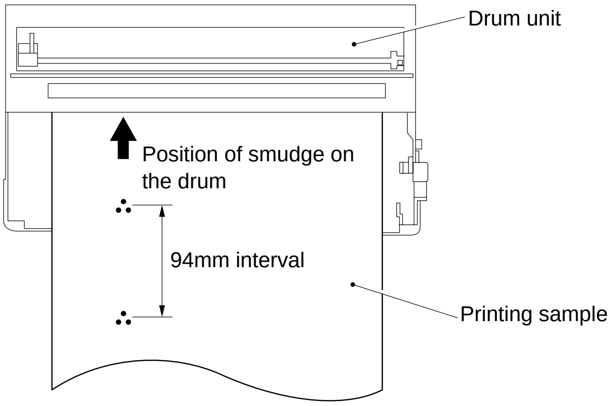


Fig. 6-7

(2) Turn the drum gear by hand while looking at the surface of the photosensitive drum.

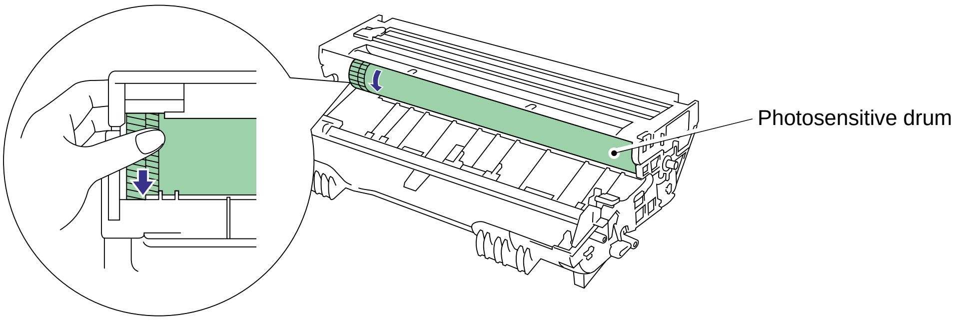


Fig. 6-8

(3) Wipe the surface of the photosensitive drum with a cotton swab until the dust or paper powder on the surface comes off.

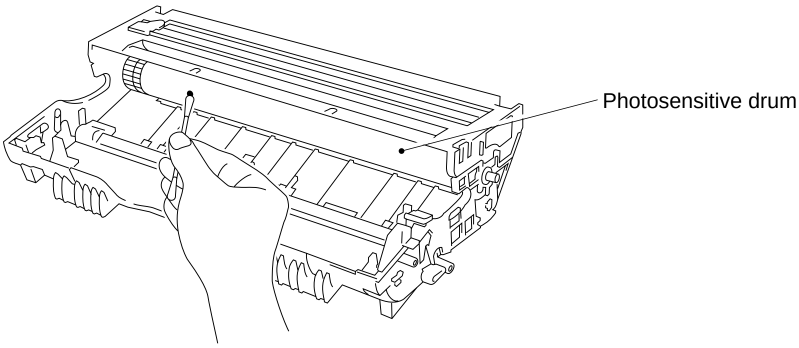
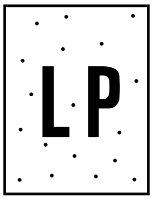


Fig. 6-9

CAUTION:

- *Do not wipe the surface of the photosensitive drum with something sharp. (ball-point pen etc.)*
- *Use cleaning liquid which is a 50-50 mixture of ethyl alcohol and pure water.*

I-16	Black spots



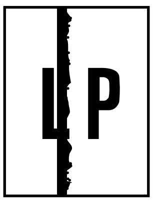
User Check

(1) If the problem is not solved after printing a few pages, the drum unit may have glue from label stock on the photosensitive drum surface. Refer to Step 1 in the table below and NOTE in the previous page.

(2) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy
Drum unit	1	Are the spots at 94mm intervals? (The problem is not solved after printing a few pages.)	Yes	1) If toner or glue remains stuck, wipe it off gently with a cotton swab. (Refer to NOTE in the previous page.) 2) If the photosensitive drum is scratched or deteriorated (exposed), replace the drum unit.
Fixing unit	2	Are the spots at 79mm intervals? (The problem is not solved after printing a few pages.)	Yes	1) Check and clean the heat roller with a cloth dampened with alcohol. 2) Replace the fixing unit.
High-voltage power supply PCB failure	3	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

I-17	Black band



Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure	1	Is the wire cleaner at its home position?	No	Return the wire cleaner to its home position.	②
Corona failure	2	Is the corona wire dirty?	Yes	1) Clean the corona wire. 2) If the problem still appears after cleaning, replace the drum unit.	②

I-18	Gray background



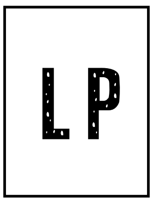
Possible cause	Step	Check	Result	Remedy
Print paper	1	Does the paper being used meet the paper specification (weight, etc.).	No	Recommend to use the specified types of paper.
			Yes	Recommend to change to freshly unpacked paper.
Toner sensing failure (printer side)	2	Is Ready LED on even after removing the drum unit and toner cartridge?	Yes	Toner sensor failure. Clean the toner sensor and check the toner sensor connection.
Toner cartridge failure	3	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge.
Drum unit failure	4	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
			No	Replace the high-voltage power supply PCB.

NOTE:

The following cases increase the possibility of this problem.

- *Acid paper is being used.*
- *The drum unit is at the end of its life.*
- *There is dust or paper powder.*

I-19	Hollow print



User Check

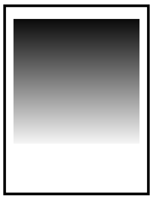
(1) Check the paper used meets the recommended paper specifications.

(2) Select the 'Thick paper mode' in the printer driver, or use thinner paper than you are currently using.

(3) Check the printer's environment, conditions such as high humidity may cause this situation to occur.

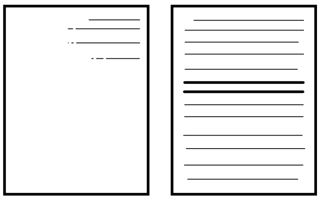
Possible cause	Step	Check	Result	Remedy
Print paper	1	Is thick paper of more than 43lb being used or extremely rough surface paper?	Yes	Recommend to use the specified types of paper.
			No	Refer and compare with I-15.

I-20	Downward fogging of solid black



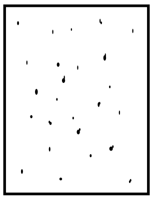
Possible cause	Step	Check	Result	Remedy
Toner cartridge failure	1	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge.
High-voltage power supply PCB failure	2	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

I-21	Horizontal lines



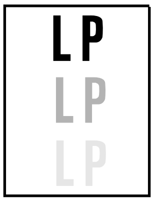
Possible cause	Step	Check	Result	Remedy	Ground contacts
Paper feed roller	1	Are the feed roller shaft and the ground contact connected correctly?	No	Check the connection between the shaft and the ground contact. Also check the ground contact on the back of the feed roller. Refer to P.4-28.	
Paper cassette contacts	2	Are the ground contacts on the back side of the paper cassette connecting correctly?	No	Clean the contacts.	⑦

I-22	Light rain



Possible cause	Step	Check	Result	Remedy
Drum unit failure	1	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
High-voltage power supply PCB failure	2	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

I-23	Ghost



User Check

(1) Check the paper used meets the recommended paper specifications. Damp paper, thick media or rough surfaced paper can cause the problem.

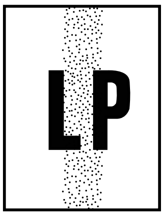
(2) Check the printer's environment. High temperature and high humidity conditions can cause the problem.

(3) Check that the appropriate media type is selected in the printer driver.

(4) Try installing a new drum unit.

Possible cause	Step	Check	Result	Remedy
Driver setting	1	Is thin paper such as 64g/m^2 used under the thick paper mode?	Yes	1) Change the current mode to the normal mode from the driver setting. 2) Print 5 or 6 blank pages if this problem occurs.
Drum unit failure	2	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
High-voltage power supply PCB failure	3	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

I-24	Toner specks



User Check

(1) Check the paper used meets the recommended paper specifications. A rough surfaced paper may cause the problem.

(2) The toner cartridge may be damaged. Install a new toner cartridge.

(3) The drum unit may be damaged, or may be nearly at the end of life. Install a new drum unit.

7.3 Location of Grounding Contacts

7.3.1 Drum unit

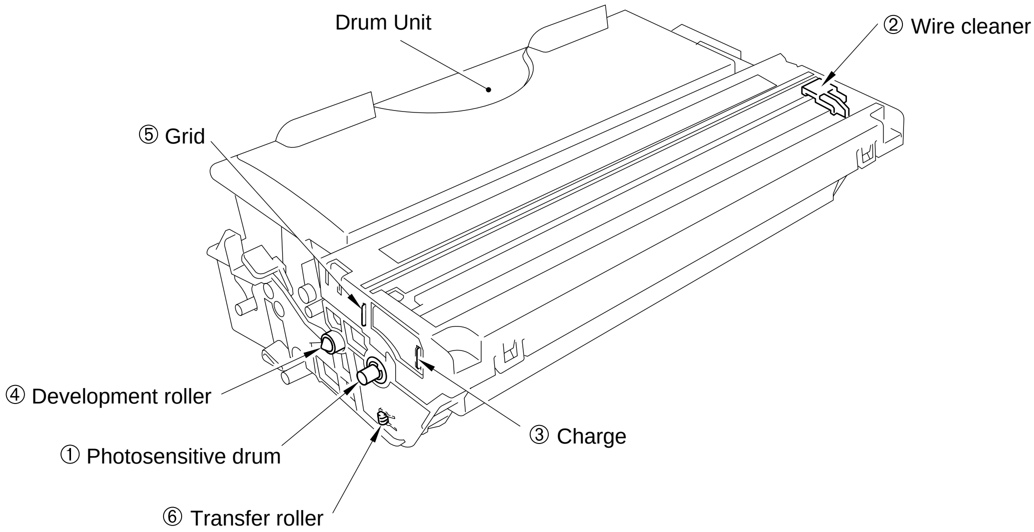


Fig. 6-10

7.3.2 Printer body & Paper cassette

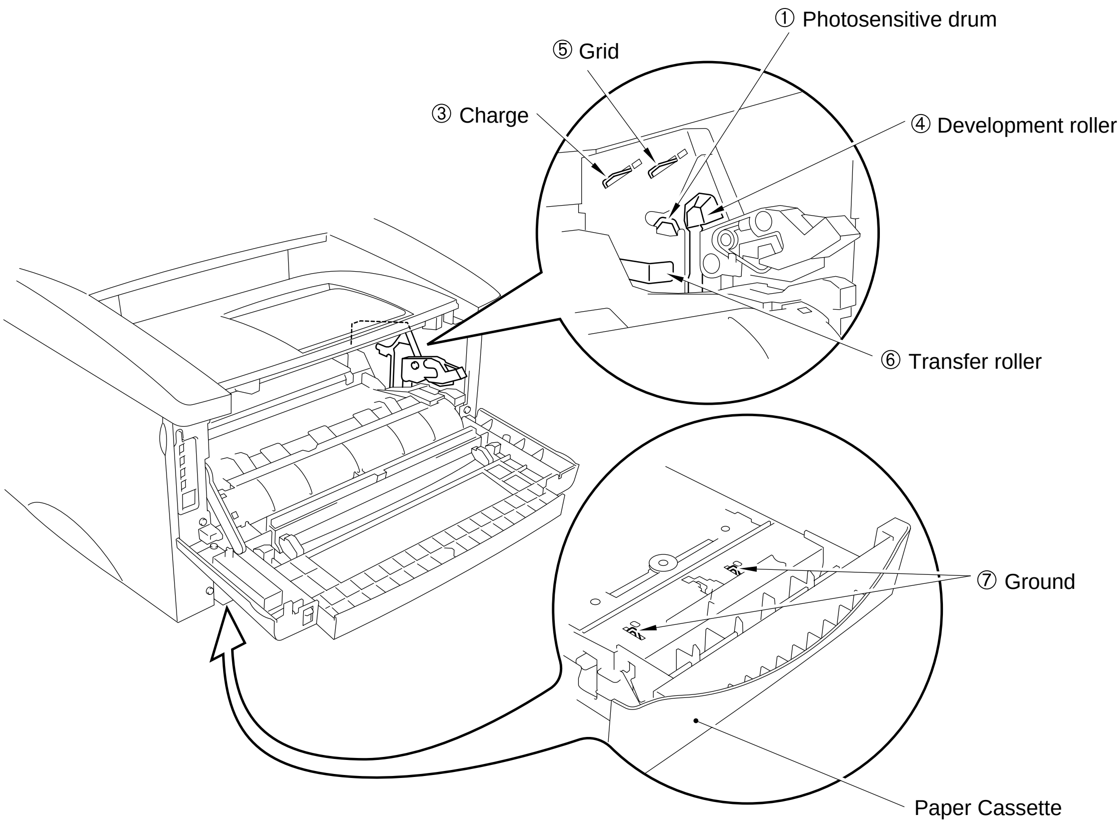


Fig. 6-11

8. INCORRECT PRINTOUT

When the data is not printed correctly as it is seen on the PC screen, follow the procedures below in the event of a specific error.

P-1	The printer prints unexpectedly or it prints garbage.

User Check

(1) Check if the printer cable is not too long. It is recommended to use a parallel cable of less than 2 meters (6.6 feet) in length.

(2) Check that the printer cable is not damaged or broken. Check also that the printer cable is connected to the correct interface connectors of both the printer and PC.

(3) If an interface switching device is used, remove it and connect the computer directly to the printer and try again.

(4) Check that the appropriate printer driver is selected as ‘Set as Default’. Check also that the correct print port is set for the selected printer driver.

(5) Check that the printer is not connected to the same port which is also connected to a mass storage device or scanner. Remove all other devices and connect the port to the printer only. Turn off the printer status monitor in the device options tab in the printer driver.

(6) If the print port is set as an ECP port, change it to a normal port.

(7) Try printing the test page referring to Subsection 10.1 ‘Test Print Mode’ in this chapter.

(8) Try resetting the factory settings.

Possible cause	Step	Check	Result	Remedy
Failure inside the printer	1	Is it possible to print the test page with the method of Subsection 10.1 ‘Test Print Mode’ in this chapter?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC, printer cable and RS-100M**?	No	Replace the main PCB.
RS-100M** failure	3	Is it possible to print with another PC and cable?	No	Replace the RS-100M.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

***NOTE:*

Take Step 2 when using the RS-100M or take Step 3 only when this problem appears while using the RS-100M.

NOTE:

If the printer prints garbage or incorrect fonts, instruct the user to use the ‘Troubleshooting for Printer won’t print’ tool of the self-diagnostics tools. If the problem cannot be solved, instruct user to use the ‘Diagnostics’ tool described in the Appendix so that you can get a log file to investigate the cause of the problem. For details on the self-diagnostics tools, see APPENDIX 5 ‘HOW TO USE SELF-DIAGNOSTICS TOOLS’.

P-2	Unable to print full pages of a document with the “PRINT OVERRUN” message.

User Check

(1) Press the panel button to print the data remaining in the printer.

(2) If this does not clear the error, reduce the complexity of your document or reduce the printer resolution.

(3) Expand the printer memory by adding a commercially available SIMM. (HL-1250/1270N only)

(4) Change the following setting in the printer driver and try again. The best combination of settings below will vary depending on your document. (HL-1250/1270N only)

Graphic Mode / TrueType^{TM} mode / Use Printer TrueType^{TM} Fonts.

NOTE:

This problem may appear if the data is too complex. If it is not cleared by taking the actions above, it will be impossible to print such data under the printer specifications.

P-3	Unable to print full pages of a document with the “MEMORY FULL” message.

User Check

(1) Press the panel button to print the data remaining in the printer.

(2) Reduce the complexity of your document or reduce the printer resolution.

(3) Expand the printer memory by adding a commercially available SIMM. (HL-1250/1270N only)

NOTE:

This problem may appear if the data is too complex.

For the HL-1240 printer, if it is not cleared by taking the actions above, it will be impossible to print such data under the printer specifications.

For the HL-1250/1270N printer, take the following procedures.

<For HL-1250/1270N only>

Possible cause	Step	Check	Result	Remedy
Unable to recognize SIMM	1	Check the memory size in Print Configuration. Is it the default size?	Yes	Expand the memory size by adding SIMM. If the memory is already at the maximum size, it will be impossible to print the data under the printer specifications.
SIMM / main PCB failure	2	Try installing SIMM into another printer, then check the memory size in Print Configuration. Is it possible to print the data?	Yes	Replace the SIMM.
			No	Replace the main PCB.

P-4	Headers or footers are not printed out even though they are viewed on PC screen.

User Check

Most laser printers have a restricted area that cannot be printed on. Usually the first two lines and last two lines of text cannot print (leaving 62 printable lines). Adjust the top and bottom margins in your document to allow for this.

P-5	The printer prints the first couple of pages correctly, then some pages have text missing.

User Check

(For connecting by RS-232C/422A on HL-1250 only)

A problem related to serial interface setting. The PC is not recognizing the printer's input buffer full signal. Causes could be incorrect serial cable (incorrectly wired or too long) or incorrect setting of the computer serial interface.

P-6	The printer sometimes prints a couple of characters and then ejects the page. (HL-1240/1250/1270N only)

User Check

(For DOS environment only)

The application printer emulation setting and the printer's emulation do not match. Check in the application software which printer you have selected to make sure the printer is set up correctly. Remember that the printer emulates widely used printer selections:

HL-1240: HP LaserJet IIP
HL-1250: HP LaserJet 6P, Epson FX-850, IBM Proprinter XL
HL-1270N: HP LaserJet 6P, Brother BR-Script Level 2, Epson FX-850, IBM Proprinter XL

Try setting the printer into HP emulation and then select the HP LaserJet IIP (for HL-1240) or HP LaserJet 6P (for HL-1250/1270N) printer in the application software.

9. NETWORK PROBLEM (FOR HL-1270N ONLY)

If the error related to network occurs, refer to the following sections;

9.1 Installation Problem

If you cannot print over the network, check the following:

(1) Make sure that the printer is powered on, is on-line and ready to print.

Verify that the printer and the configuration are good by printing the Network Configuration page. (To print the Configuration page press the Network Test button for less than 5 seconds.) If the test fails, check:

a) If the Alarm LED on the printer front panel is ON or blinking and all of the LEDs on the back panel - near the UTP (Ethernet) connector - are OFF, or the Orange (F) LED is blinking, then the network firmware settings may be corrupted.

b) In this event, try to restore the factory default settings of the print server by pressing the Network Test button on the back panel of the printer for more than 5 seconds. Once you have done that, turn the printer power off and then on again, and try to print out the Network Configuration page.

(2) If the Configuration page is printed but you cannot print documents, try the following

NOTE:

If none of the following steps are successful, there is almost certainly a hardware or network problem!

a) If you are using TCP/IP:

Try pinging the print server from the host operating system prompt with the command ping *ipaddress*, where *ipaddress* is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address (after setting the IP address). If a successful response is received, then proceed to the *UNIX, TCP/IP Windows NT/LAN Server, Windows98/95 Peer to Peer (LPR), Internet Printing or Web Browser troubleshooting section.* Otherwise, proceed to step (3), and then go to subsection 9.3 'TCP/IP Troubleshooting'.

b) If you are using Novell system:

Verify that the print server can be seen on the network. To do this, login as the SUPERVISOR (not as someone with supervisor privileges) or ADMIN (for Netware 4 or later servers), go into PCONSOLE, select PRINT SERVER INFORMATION, and select the name of the print server (make sure that you have entered the print server name). If you can see `Print Server Status` and `Control` in the menu, then the Brother print server is visible to the network, proceed to subsection 9.10 'Novell NetWare Troubleshooting'. Otherwise, go to step (3).

c) If you are running AppleTalk for Macintosh:

Make sure that you can see the print server name under the LaserWriter 8 icon in the Chooser. If it is visible, then the connection is good, so proceed to subsection 9.11 'AppleTalk Troubleshooting'. Otherwise, go to step (3).

(3) If you cannot make any of the connections in step (2), check the following:

a) Make sure the printer is turned on and on-line.

b) Verify that the cabling and network connection are good. If possible, try the print server on a different connection on the network. Also, print out a Configuration page to see if you can see any Network Statistics information.

c) Check to see if there is any LED activity.

The print server has three LEDs. These can be used to diagnose problems.

- L- LED (green): Link activity

  This LED is on if there is a valid connection to the network (either 10BaseT or 100BaseTX). It is off if no network is detected.

- F-LED (orange): Fast Ethernet

  This LED will be on if the print server is connected to a 100BaseTX Fast Ethernet network. It is off if the print server is connected to a 10BaseT network.

- A-LED (green): Transmission Activity

  This LED will blink synchronized to the transmission or receive status.

(4) If you are using a repeater or hub, make sure that SQE (heartbeat) is turned off at the hub. Also, if you have a hub or multi-port repeater, verify that the hub or repeater port is good by trying the print server on a different port.

(5) If you have a bridge or router located between the print server and host computer, make sure that the device is set up to allow the print server to send and receive data from the host. For example, a bridge can be set up to only allow certain types of Ethernet addresses to pass through (a process known as filtering); therefore, such a bridge must be configured to allow Brother print server addresses. Likewise, a router can be set up to pass only certain protocols, so be sure that the desired protocol can be passed through to the print server.

(6) If the job exits the queue but does not print, make sure that you are not trying to print a text job to a PostScript printer. If you have a printer that is capable of automatic language switching, make sure that the printer is not forced into PostScript mode.

9.2 Intermittent Problem

If the print server and printer start up OK, but you intermittently have problems printing, check the following:

(1) If you can print small jobs but large graphics jobs are distorted or incomplete, make sure that you have adequate memory in your printer and the latest printer driver installed on your computer. The latest Brother printer drivers can be downloaded from www.brother.com.

(2) Check the individual protocol troubleshooting sections in this chapter for additional causes of intermittent printer problems.

9.3 TCP/IP Troubleshooting

If you are using TCP/IP and cannot print to the print server and you have checked the hardware and network as described in the previous steps, then check the following:

NOTE:

It is always a good idea to try the following in order to eliminate the possibility of setup errors.

- *Turn off the printer and then again,*
- *Delete and recreate the print server and create a new print queue in order to eliminate the possibility of setup errors.*

(1) The problem may be the result of mismatched or duplicate IP address. Verify that the IP address is correctly loaded into the print server (via the configuration page). Make sure that no other nodes on the network have this address (DUPLICATE IP ADDRESS ARE THE BIGGEST CAUSE OF TCP/IP PRINTING PROBLEMS).

(2) If you used BRCONFIG to enter the IP address, make sure that you exited the remote console properly with a CTRL-D or EXIT and that you turned the printer off and then again (it may take up to two minutes for the IP address to take effect).

(3) Make sure that the TCP/IP protocol of the print server is enabled.

(4) If you used rarp, make sure that you started the rarp daemon on any workstation using the rarpd, rarpd-a, or equivalent command. Verify that the `/etc/ethers` file contains the correct Ethernet address and that the print server name matches the name in the `/etc/hosts` file.

(5) If you used bootp, make sure that you started the bootp deamon on any UNIX workstation and bootp is enabled (i.e., the "#" is removed from the bootp entry) in the /etc/bootptab file is correctly configured.

(6) Also verify that host computer and the print server are on the same subnet, if the printer is on a different subnet, make sure that the router is configured correctly and ensure that the GATEWAY address is configured to match the IP address of the router.

9.4 UNIX Troubleshooting

(1) Make sure that the `/etc/printcap` file (if applicable) is typed in correctly. In particular, look for missing ":" and "\" characters, because a small error *anywhere* in the file can have *major* consequences. Also check the `/usr/spool` directory to make sure that you have created a valid spool directory.

(2) If you are using a Linux operating system, the X-Window Print tool program that is included with Linux may not properly configure the etc/printcap file for lpd operation, then you might also edit the etc/printcap file and change the following line in the entry for the printer.

if

```
:lp = /dev/null: \
```

then to

```
:lp = :\
```

(3) If you are using a Berkeley-based UNIX, make sure that the daemon is started on Berkeley based systems with the command lpc start *printer*, where *printer* is the name of the local print queue.

(4) If you are using an AT&T-based UNIX, make sure the printer is enabled (enable *printer*, where *printer* is the name of the local print queue).

(5) Make sure that the lpr/lpd remote line printer service are running on the host computer (refer to your host computer documentation for information on how to do this).

(6) If you are having trouble printing more than one job at a time, try increasing the IP timeout using the SET IP TIMEOUT command or using BRAdmin32.

(7) If text or PCL jobs are run together, try setting the service (remote printer) with EOT set to string number 2 (<ESC>E). For example:

```
SET SERVICE BRN_xxxxxx_P1 EOT 2
```

(8) If PostScript jobs fail to print or are run together, try setting the service (remote printer) with EOT set to string number 3 (control-D). For example:

```
SET SERVICE BRN_xxxxxx_P1 EOT 3
```

(9) If the lines of a text file are staggered, make sure that you have specified a remote printer (rp) name of TEXT in your `/etc/printcap` file.

(10) If you are using Sun Solaris V2.4 or earlier, there is a bug which causes long print jobs to fail when using a print server. If you are having trouble printing long jobs (over 1MB), add the line `mx#0` to your `etc/printcap` file entry.

9.5 Windows NT/LAN Server (TCP/IP) Troubleshooting

If you are having trouble printing with Windows NT or LAN Server, check the following:

(1) Make sure that TCP/IP and TCP/IP print service are installed and running on the Windows NT system or the LAN Server file server.

9.6 Windows 95/98 Peer to Peer Print (LPR) Troubleshooting

If you are having trouble printing on a Windows 95/98 (or later) Peer to Peer network (LPR method), check the following:

(1) Make sure that the Brother LPR Port driver is correctly installed and configured according to the Windows 95/98 Peer to Peer chapters in the Network User's Guide.

(2) You may find that during the installation of BLP software, the screen that prompts you for a Port name is not displayed. This may happen on some Windows 95/98 computers. Press the ALT and TAB keys to make it appear.

9.7 Windows 95/98 (or later) Peer to Peer (HP JetAdmin Compatible Method) Troubleshooting

If you are having trouble printing on a Windows 95/98 (or later) Peer to Peer network, check the following (HP JetAdmin compatible method):

(1) If the print server does not show up under JetAdmin on a Windows 95/98 Peer to Peer network, try removing all of the Windows 95/98 network software from the Network Control panel and then reinstalling them as follows:

- First install the IPX/SPX-Compatible Protocol (or the TCP/IP protocol if you are using a later version of JetAdmin), the Client for Microsoft Networks, and the network adapter card driver.
- Install the Latest HP JetAdmin software
- Restart the system, and then add the HP JetAdmin service.

9.8 Windows 95/98/NT 4.0 Peer to Peer Print (NetBIOS) Troubleshooting

If you are having trouble printing on a Windows 95/98/NT 4.0 (or later) Peer to Peer network (NetBIOS), check the following:

(1) Make sure that the Brother NetBIOS Port driver is securely installed and configured according to the Windows 95/98/NT 4.0 Peer to Peer (NetBIOS) chapters. You may find that during the installation of the port driver, the screen that prompts you for a Port name is not displayed. This happens on some Windows 95/98/NT 4.0 computers. Press the ALT and TAB keys to make it appear.

(2) Make sure that the print server is configured to be in the same workgroup or domain as the test of your computers. It may take several minutes for the print server to appear in the network neighborhood.

9.9 Internet Print (TCP/IP) Troubleshooting

(1) The first step in troubleshooting is to make sure that you have a valid E-mail connection on both the sending PC and the receiving print server. Try sending an E-mail message from the PC to a user at the remote site who can receive mail via the POP3 server. If this does not work, there may be an E-mail configuration problem on the PC, on the local E-mail server, or on the remote POP3 server. Double check to make sure that the E-mail parameters that you configured on the PC and on the remote print server match those that are configured on the E-mail servers.

(2) If you can print small files OK but are having problems printing large files, the problem may be in the e-mail system. Some E-mail systems have difficulties printing large files. If the file does not reach its destination intact, then the problem is with the E-mail system.

(3) You can also enable the partial e-mail print facility on your client PC, this will split the e-mail up into fragments which should then not overwhelm your e-mail server. To do this, select the property dialog of the Brother Internet Print Port.

9.10 Novell Netware Troubleshooting

If you cannot print from NetWare and you have checked the hardware and network as described in the previous steps, first verify that the Brother print server is attached to the server queue by going to PCONSOLE, selecting `PRINT QUEUE INFORMATION`, and then `CURRENTLY ATTACHED SERVERS`. If the print server does not appear in the list of attached servers, then check the following:

NOTE:

It is always a good idea to try followings in order to eliminate the possibility of setup errors

- *Turn the printer off and then on again to force the printer to rescan the Netware queue.*
- *Delete and recreate the print server and create a new print queue in order to eliminate the possibility of setup errors.*

(1) If you changed the login password, you must change the password in *both* the Brother print server (using the `SET NETWARE PASSWORD` command if you are using the BRConfig software) or by using a web browser or the BRAdmin32 utility and in the file server (using the PCONSOLE Print Server Information Change Password command).

(2) If you created the print queue using PCONSOLE and instead of BRAdmin32, make sure that you have enabled at least one NetWare file server using the `SET NETWARE SERVER` *`servername`* `ENABLED` command.

(3) Have you exceeded your NetWare user limit?

(4) Make sure that the print server name you used in PCONSOLE *exactly* matches the name that is configured in the print server, and make sure it is defined as a Queue Server for the print queue.

(5) If you are running both 802.3 and Ethernet II frames on different file servers on your network, there is a possibility that the print server may not make a connection to the desired file server. Try forcing the frame type to the desired one using the `SET NETWARE FRAME` command from the print server remote console or using BRAdmin32.

(6) If you are using DOS CAPTURE statement and losing portions of your print job, try setting the TIMEOUT parameter in your CAPTURE statement to a higher value (at least 50 seconds for Windows).

9.11 AppleTalk Troubleshooting

If you cannot print from an AppleTalk for Macintosh computer and you have checked the hardware and network as described in the previous steps, then check the following:

(1) Make sure that you are running Phase 2 AppleTalk and that you have selected the correct network interface from the Network Control Panel on the Macintosh.

(2) Make sure that the AppleTalk protocol of the print server is enabled.

(3) If you have a large network, make sure that you have the Laser Writer V8.xx or equivalent driver, since earlier versions may cause PostScript errors. Also, verify that you get the correct printer information when you select **Printer Info** from the **Setup** button in the Chooser.

(4) Make sure that you have selected the correct Printer Description File (PPD) from the Chooser (otherwise PostScript errors may result)

(5) Verify that you have selected the correct AppleTalk zone. Because the print server gets its zone information from router broadcasts, it may not be in the zone you expect, and will therefore not show up in the Chooser. If this is the case, you may need to force the zone name with the `SET APPLETALK ZONE` command described in Appendix A or using BRAdmin32.

(6) Verify that the Laser Prep versions on all Macintosh computers that need to print to the print server are the same.

(7) The NC-2010p printer server checks to see if the printer that it is connected to supports PostScript. If the printer does not support PostScript, the AppleTalk protocol is disabled. If your printer does not appear in the Chooser it may simply be caused by the lack of PostScript support in the printer. For example, connecting a Brother HL-1250 printer to a network using the Brother NC-2010p, will result in the printer NOT appearing in the Chooser as the HL-1250 printer does not support PostScript.

9.12 Apple TCP/IP Printing (System 8.6 or later)

(1) From system 8.6 or later, Apple introduced the Desktop Printer Utility. This utility allows TCP/IP printing from an i-Mac/G3 or later Macintosh.

(2) From the “Internet Printer” dialogue, please ensure that you enter the correct service name in the “Queue” option. For example, for NC-3000 series network cards enter BRN_xxxxxx_P1_AT (where xxxxxx is the last six digits of the MAC address of the NC-3000 series card). For NC-2000 series network cards enter BRO_xxxxxx_P1_AT (where xxxxxx is the last six digits of the MAC address of the NC-2000 series card).

(3) This method of printing requires that the printer supports PostScript. If your printer does not support PostScript printing. Please consult your printer manual to see if your printer supports PostScript.

9.13 Web Browser Troubleshooting (TCP/IP)

(1) If you can not connect to the print server using your web browser it may be worth checking the Proxy Settings of your browser. Look in the Exceptions setting and if necessary, type in the IP address of the print server. This will stop your PC from trying to connect to your ISP or proxy server every time you wish to look at the printer server.

(2) Make sure that you are using the proper Web Browser, we recommend Netscape Navigator version 3.0 or later/ Microsoft Internet Explorer version 3.02a or later.

10. INSPECTION MODE

10.1 Test Print Mode

The printer incorporates various test print modes.

Select the test mode you want to use following the steps below;

(1) Turn off the power switch of the printer and check that the front cover is closed.

(2) Turn on the power switch while holding down the control panel button. Press the button until the Drum LED comes on.

The Drum LED illuminates to indicate that the printer enters into the test print mode.

(3) If you want to execute the test print, release and then press the button again when the Drum LED comes on.

If you want to execute another option, hold down the button to select it as shown in the table below. Release and then press the button to execute the selected option.

LED	Type of mode	Function
Drum	Test Sample Page	The printer prints a test sample page. The printer returns to the ready status after printing.
Ready	Print Configuration & Print Fonts I (HL-1240/1250/1270N only)	The printer prints the current configuration of the printer and a list of the internal fonts. The printer returns to the ready status after printing.
Alarm	Factory Reset	The printer is restored to the factory setting and permanent fonts and macros are cleared. The printer returns to the ready status after printing.
Data	Hex Dump Print (HL-1240/1250/1270N only)	The printer can print data as hexadecimal values so that you can check data errors and problems. To exit from this mode, you have to turn off the printer.

<u>For the demo printer</u>

Once you have sent any data from a PC to a demo printer to print, the demo printer turns into a normal printer. Follow the procedures below to return it to being a demo printer;

<Sending the print file using the Brownie utility>

(1) Download the **Brownie** utility and the PRN file for your language from the <u>Printer Utility DB</u> of Lotus Notes and install the Brownie software onto your PC.

(2) Open the Brownie utility and select the printer you want to return to being a demo printer.

(3) Open Explorer and find the PRN file you have downloaded in step 1), then drag the file onto the Brownie window.

(4) Once the Brownie utility has finished sending the PRN file, turn the printer power off and then turn it on again.

(5) Press the panel button, the demo page printing starts.

<Sending the print file from the DOS box>

(1) Download the PRN file for your language from the Printer Utility DB of Lotus Notes.

(2) Enter the following command in the DOS box, then press the Enter key.

```
Copy <demo file> lpt1:/b
```

(3) When the file transfer finishes, turn the printer power off and then turn it on again.

(4) Press the panel button, the demo page printing starts.

NOTE:

- *The above operation is effective for the demo printer version only. If you implement the operation for a normal printer, no demo page is printed.*
- *There are two types of PRN file, XXX_DEMO.PRN to return the printer to a demo model and XXX_CLR.PRN to return the printer to the factory default settings.*

10.2 Inspection Mode

The printer incorporates various inspection modes such as the factory inspection mode and the test print mode.

The printer supports a factory inspection mode, continuous grid pattern print mode, 3 patterns print mode and NV-RAM value dump mode.

Select the inspection mode you want to use following the steps below;

(1) Turn off the power switch of the printer

(2) Open the front cover, and turn on the power switch while holding down the control panel button.

(3) When the printer enters into the inspection mode, the Drum LED is ON. Holding down the panel button will cause the LEDs to turn ON in the order Drum → Ready → Alarm → Data → Drum. When you release the button, a mode is selected.

The mode selected is indicated by the LED which is ON when you release the button.

The inspection modes are assigned to the respective LEDs as shown below;

LED	Type of inspection
Drum	Factory inspection mode
Ready	Continuous grid pattern print mode
Alarm	3 patterns print mode (grid, zip, black)
Data	NV-RAM value dump mode
Drum + Ready	ROM code reprogramming mode (only when flash memory is fitted)
Ready + Alarm	RAM check
Alarm + Data	4% density pattern print mode

NOTE:

- *The NV-RAM value dump mode is not incorporated in some models.*
- *To print the test pattern tests in the table above, close the front cover. Opening the front cover again will stop the test print.*

Factory inspection mode

The factory inspection mode is used to check if the sensors in the printer are functioning correctly. In the process of this inspection, the LEDs and the control panel button are also checked.

On entering this mode, the LEDs show the status of the respective sensors as shown in the figure below;

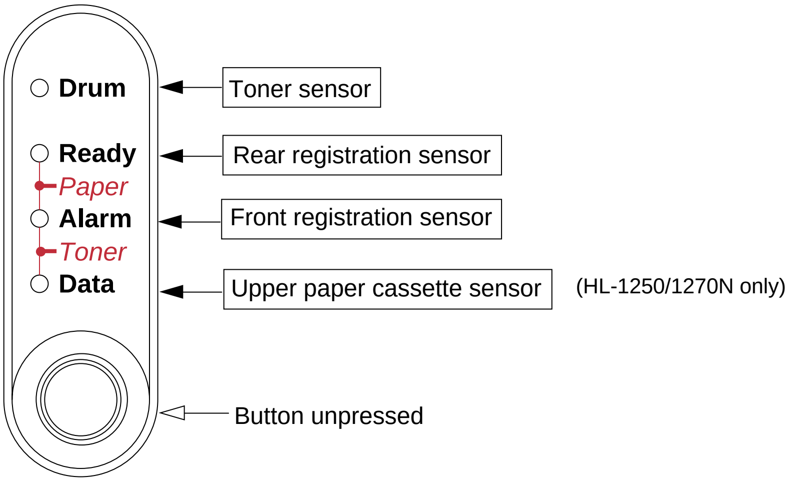


Fig. 6-12

Toner sensor	ON (The toner cartridge is installed.)	Drum LED ON
	OFF (No toner cartridge is installed.)	Drum LED OFF
Rear registration sensor	ON (Paper is detected.)	Ready LED ON
	OFF (No paper is detected.)	Ready LED OFF
Front registration sensor	ON (Paper is detected.)	Alarm LED ON
	OFF (No paper is detected.)	Alarm LED OFF
Upper paper cassette	ON (No paper cassette is installed.)	Data LED ON
sensor (HL-1250/1270N only)	OFF (The paper cassette is installed.)	Data LED OFF

For checking more sensors, press the panel button. The LEDs show the status of the respective sensors as shown in the figure below.

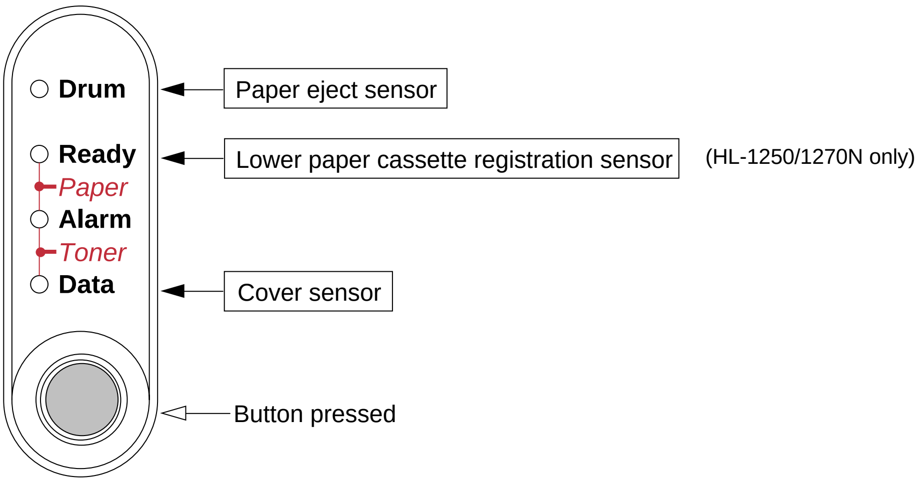


Fig. 6-13

Paper eject sensor	ON (Paper is detected.)	Drum LED ON
	OFF (No paper is detected.)	Drum LED OFF
Lower paper cassette registration sensor (HL-1250/1270N only)	ON (No lower paper cassette is installed. / Paper is detected.)	Ready LED ON
	OFF (The lower paper cassette is installed. / No paper is detected.)	Ready LED OFF
Cover sensor	ON (The front cover is closed.)	Data LED OFF
	OFF (The front cover is open.)	Data LED ON

The procedure for the factory inspection mode is as follows.

(1) Turn off the printer power switch, open the front cover, and remove the drum unit.

(2) Turn on the printer power switch while holding down the control panel button. The Drum LED comes ON.

(3) Lightly press the panel button again.

(4) Check that all the LEDs except the Ready LED are OFF.
- If the toner sensor is ON, the Drum LED stays ON (error).
- If the front registration sensor is ON, the Alarm LED stays ON (error).
- If the upper paper cassette sensor is ON, the Data LED stays ON. (error) (HL-1250/1270N only)

NOTE:

The lower paper cassette solenoid is turned ON/OFF even if the panel button is not pressed.

(5) Check the rear registration sensor.
- If the rear registration sensor is stuck backwards, the Ready LED stays OFF. (error)
- If the rear registration sensor is moved back and forth, the Ready LED comes ON at any time. (error)

NOTE:

When checking the rear registration sensor with the drum unit removed, to enable a reliable test to be carried out, take the following steps;

(i) Push the sensor fully backwards into the printer and ensure the Ready LED is lit.

(ii) Move the sensor arm slowly forwards and ensure the Ready LED goes out and then comes on again before the sensor arm reaches its front limit of travel.

(iii) Refit the drum unit and ensure the Ready LED is OFF.

(6) Check that only the Data LED comes ON while pressing the panel button.
- If the paper eject sensor is ON, the Drum LED stays ON. (error)
- If the lower paper cassette registration sensor is ON, the Ready LED stays ON. (error) If the registration sensor is ON, the lower paper cassette solenoid is turned ON, and the Ready LED also stays ON. (HL-1250/1270N only)

NOTE:

The lower paper cassette solenoid is turned ON/OFF even if the panel button is not pressed.

(7) Install the drum unit.
- Check that the Drum LED goes ON and the Ready LED goes OFF.

(8) Close the front cover.

(9) Continue to press the control panel button.

✐ Check that the Data LED stays OFF.

(10) Release the panel button.

(11) If all the sensors except the toner sensor are correct, the printer goes back to the Ready status.
If any error is detected, the printer stays in the inspection mode.

NOTE:

If the printer goes back to the Ready status after the toner sensor does not detect the drum unit, the printer starts to recognize the main motor.

APPENDIX 1. SERIAL NO. DESCRIPTIONS

The descriptions below show how to understand the meanings of the numbers printed on the labels or bag of the printer and printer parts.

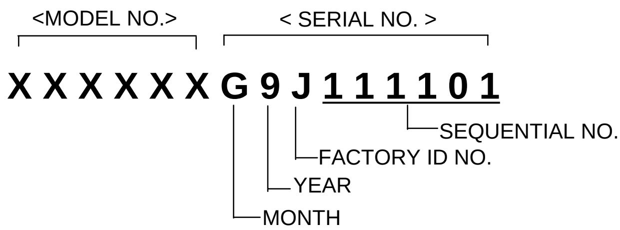
< ID for production month >

A:	January	B:	February	C:	March	D:	April
E:	May	F:	June	G:	July	H:	August
J:	September	K:	October	L:	November	M:	December

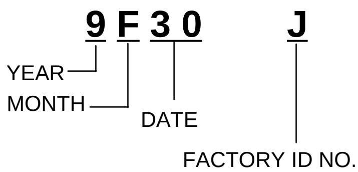
< ID for factory >

9:	Kariya Plant	A:	Mie Brother	C:	BIUK
J:	Buji Nan Ling Factory				

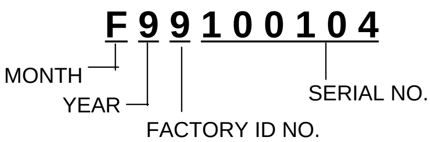
(1) Printer ....printed on the label attached on the rear of the main body



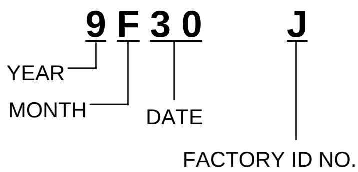
(2) Process unit ....imprinted on the aluminum bag
(Drum unit with toner cartridge)



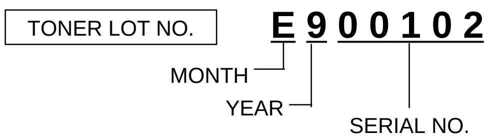
(3) Drum unit ....printed on the bar code label attached inside the drum unit

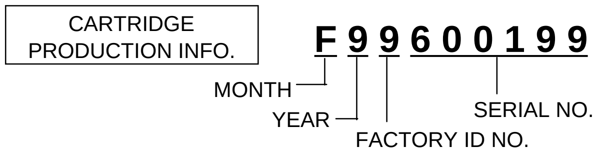


(4) Toner cartridge......imprinted on the aluminum bag

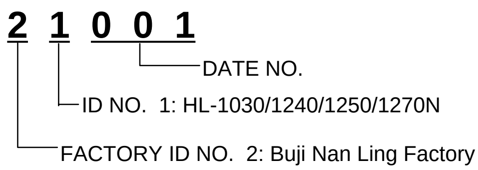


.........printed on the bar code label attached on the toner cartridge





(5) Laser unit ....on the laser unit



APPENDIX 2. DIAMETER / CIRCUMFERENCE OF ROLLERS

The diameter and circumference of each roller are listed below;

No.	Parts Name	Diameter (Circumference)
1	Paper Feed Roller	ϕ 14.0 mm (44.0 mm)
2	Transfer Roller	ϕ 15.20 mm (47.7 mm)
3	Photosensitive Drum	ϕ 29.97 mm (94.1 mm)
4	Heat Roller	ϕ 25.0 mm (78.5 mm)
5	Pressure Roller	ϕ 20.0 mm (62.8 mm)
6	Development Roller	ϕ 20.0 mm (39.0 mm)

APPENDIX 3. PRINT SPEEDS WITH VARIOUS SETTINGS

Print speed of the HL-1240/1250/1270N printers is up to 12 ppm when loading A4 or Letter size paper from the paper cassette in the Regular mode.

Actual print speed varies depending on the media type or paper size as shown in the tables below;

<A4 or Letter size>

Media type setting	All models
Transparency	up to 12 ppm
Thin Paper	up to 12 ppm
Regular	up to 12 ppm
Thick Paper	up to 12 ppm
Thicker/Bond Paper	A4: 3 ppm / Letter: 3 ppm or more

<Smaller size than A4 or Letter>

Media type setting	HL-1240 demo model	HL-1240/1250/1270N standard model
Transparency	6 ppm after 5 min. have passed.	Max. speed
Thin Paper	6 ppm after 5 min. have passed.	Max. speed
Regular	6 ppm after 5 min. have passed.	12 ppm after 5 min. have passed.
Thick Paper	6 ppm after 30 sec. have passed.	6 ppm after 30 sec. have passed.
Thicker/Bond Paper	A6: 3.75 ppm	A6: 3.75 ppm

NOTE:

- *When a smaller size paper than A4 or Letter is printed, the temperature on both edges of the fixing unit is much higher than the temperature on the center of the unit where the paper is fed depending on the setting or model. Therefore, the print speed is slowed in order to decrease the temperature on the edges after the specified time, it is maximum print speed when you first start printing.*
- *Max. speed is 12 ppm or more. It varies depending on the paper size.*

APPENDIX 4. HOW TO KNOW DRUM UNIT LIFE & PAGE COUNTER

If you want to know the drum unit life or the number of printed pages, you should print out the Print Configuration page for the HL-1240/1250/1270N printer, or print out the Test Print page for the HL-1030.

NOTE:

The page counter, drum counter and drum unit life bar are NOT printed on the Print Configuration page for some models. *For those models, use the Printer Information tool which indicates the page counter, etc. on the PC screen, referring to* *Section 3 'Printer Information' in APPENDIX 5**.*

1. Print Configuration (for HL-1240/1250/1270N only)

(1) Turn on the power switch of the printer while pressing the printer control panel button.

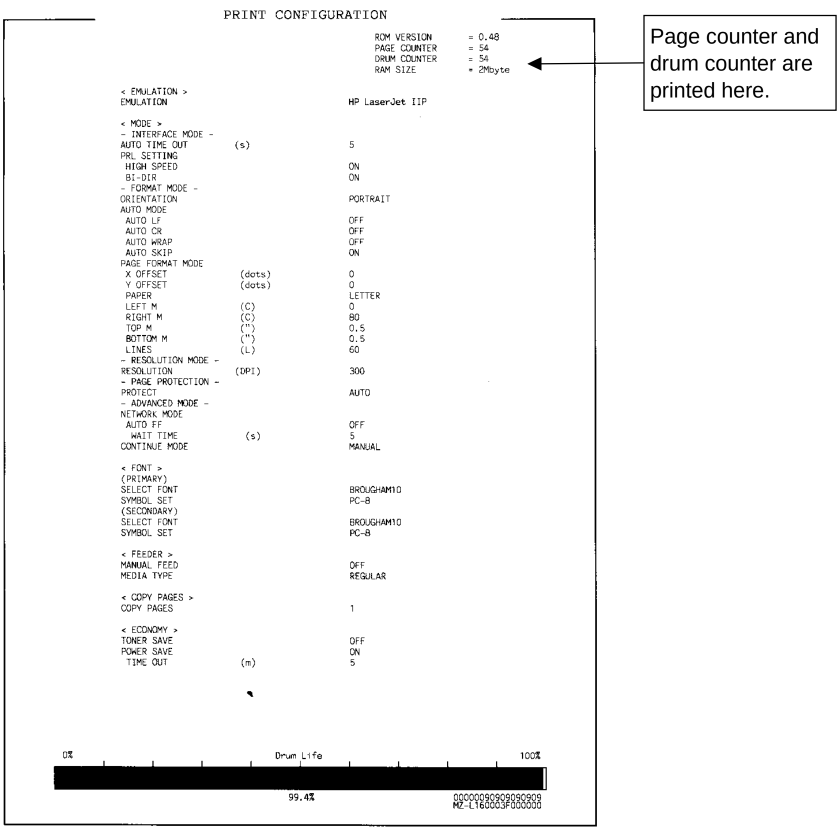
(2) Release the panel button when the Drum LED comes on.

(3) Press the panel button again and release it when the Ready LED comes on.

(4) Print the Print Configuration page.

The page counter and drum counter are printed at the right upper in Print Configuration. (Refer to the figure below.) Note that the drum counter is an actual page counter after a new drum unit is replaced, and may be different from the drum unit life shown in the drum life bar. For details, see Section 2 'How to Read the Drum Unit Life'.

<Sample - HL-1240 for Europe>


PRINT CONFIGURATION

ROM VERSION = 0.48
PAGE COUNTER = 54
DRUM COUNTER = 54
RAM SIZE = 2Mbyte

< EMULATION >
EMULATION — HP LaserJet IIP

< MODE >
- INTERFACE MODE -
AUTO TIME OUT (s) 5
PRL SETTING
HIGH SPEED ON
BI-DIR ON
- FORMAT MODE -
ORIENTATION PORTRAIT
AUTO MODE
AUTO LF OFF
AUTO CR OFF
AUTO WRAP OFF
AUTO SKIP ON
PAGE FORMAT MODE
X OFFSET (dots) 0
Y OFFSET (dots) 0
PAPER LETTER
LEFT M (C) 0
RIGHT M (C) 80
TOP M (") 0.5
BOTTOM M (") 0.5
LINES (L) 60
- RESOLUTION MODE -
RESOLUTION (DPI) 300
- PAGE PROTECTION -
PROTECT AUTO
- ADVANCED MODE -
NETWORK MODE
AUTO FF OFF
WAIT TIME (s) 5
CONTINUE MODE MANUAL

< FONT >
(PRIMARY)
SELECT FONT BROUGHAM10
SYMBOL SET PC-8
(SECONDARY)
SELECT FONT BROUGHAM10
SYMBOL SET PC-8

< FEEDER >
MANUAL FEED OFF
MEDIA TYPE REGULAR

< COPY PAGES >
COPY PAGES 1

< ECONOMY >
TONER SAVE OFF
POWER SAVE ON
TIME OUT (m) 5

0% Drum Life 100%
99.4%
00000090909090909
MZ-L160003F000000

Fig. A-1

NOTE:
The descriptions printed in Print Configuration vary depending on the printer models or countries.

2. Test Print (for HL-1030 only)

(1) Turn on the power switch of the printer while pressing the printer control panel button.

(2) Release the panel button when the Drum LED comes on.

(3) Press the panel button again and release it when the Drum LED comes on.

(4) Print the Test Print page.

The page counter and drum counter are printed at the bottom of the Test Print. (Refer to the figure below.) Note that the drum counter is an actual page counter after a new drum unit is replaced, and may be different from the drum unit life shown in the drum life bar. For details, see Section 2 'How to Read the Drum Unit Life'.

<Sample - HL-1030 for Europe>

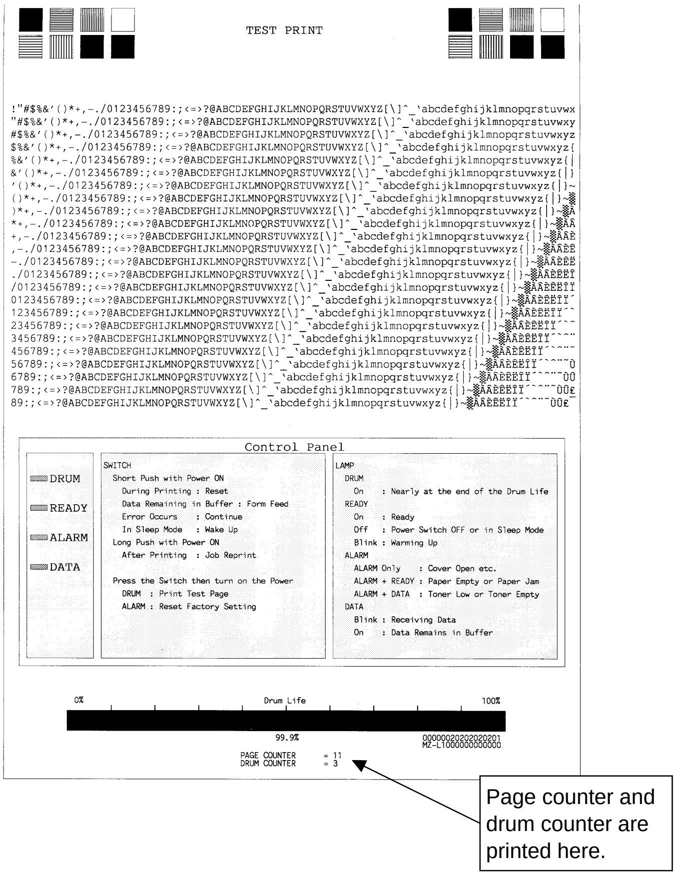


Fig. A-2

NOTE:
The descriptions printed in Test Print vary depending on the country.

3. How to Read the Drum Unit Life

The drum unit life is shown by the bar at the bottom of Print Configuration or Test Print as follows;

- It initially indicates 100% and gradually decreases.
- It indicates 0% when the Drum LED is on.
- It stays at 0% even if further printing is done.

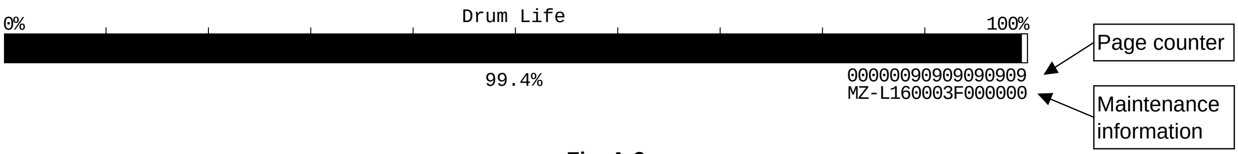


Fig. A-3

The drum unit life is based on the page counter. If the average number of drum rotations is more than the number of drum rotations in non-continuous printing, however, the drum unit life is counted by the number of drum rotations.

Since the drum counter printed in Print Configuration (HL-1240/1250/1270N) or Test Print (HL-1030) is an actual page counter after a new drum unit is replaced, the drum unit life may be different from the drum counter.

For details on the difference between the drum unit life and drum counter, refer to the drum unit life calculation below;

<How to calculate drum unit life>

**Printing time for 1 page/job in discontinuous printing = 14 seconds

(Page counter reduced by the number of drum rotations) = (Time of motor rotation) ÷ (14 sec.)

Example:

	Cold start (Idling for 6 sec.)	Hot start	Page counter
1 page/job	(6 + 14) / 14 = 1.43	14 / 14 = 1	1
2 pages/job	(6 + 14 + 5) / 14 = 1.79	(14 + 5) / 14 = 1.36	2
16 pages/job	(6 + 14 + 5 x 15) / 14 = 6.79	(14 + 5 x 15) / 14 = 6.36	16

If printing 1 page per job with cold start, the drum unit life is decreased earlier.

NOTE:

For information on how to understand the numbers on the right below the bar, see the following sections, ‘4. How to Read the Page Counter’ and ‘5. How to Read the Maintenance Information’.

4. How to Read the Page Counter

The page counter is shown at the right upper corner in Print Configuration (HL-1240/1250/1270N), or at the bottom center in Test Print (HL-1030).

It is also shown in the upper line on the right below the drum life bar and indicates the number of printed pages in units of 1 and 1,000.

- Value in units of 1

The hexadecimal value stored in NV-RAM is printed.

Example: 000000E0D0D0D0D0D

Value in units of 1,000 (Refer to the list below.) → 0 00 00 0E 0D 0D 0D 0D 0D

60,000 x 0 + 600 x 0 + 14 + 13 + 13 + 13 + 13 + 13 = 79

- Value in units of 1,000

Page counter indicated by units of 1,000 pages.

→ 0 - 99 pages	0	600 - 699 pages	6
100 - 199 pages	1	700 - 799 pages	7
200 - 299 pages	2	800 - 899 pages	8
300 - 399 pages	3	900 - 999 pages	9
400 - 499 pages	4	1,000 - 1,999 pages	A
500 - 599 pages	5	2,000 - 2,999 pages	B

5. How to Read the Maintenance Information

The maintenance information such as the frequency of consumable parts replacement or paper jam can be found from the 17-digit number shown in the lower line on the right below the drum unit life bar.

NOTE:

The 17-digit number is also shown in the Printer Information dialog box which is one of the self-diagnostics tools. For details, refer to *Section 3 'Printer Information' in APPENDIX 5.*

To obtain the maintenance information, you need to obtain and load the Maintenance Information utility which supplied on Service Databank by following the steps below;

(1) Download the Maintenance Information utility from the Printer Utility DB in Service Databank.

(2) Open the utility, then select 'Decode the 4-byte data' in the menu.

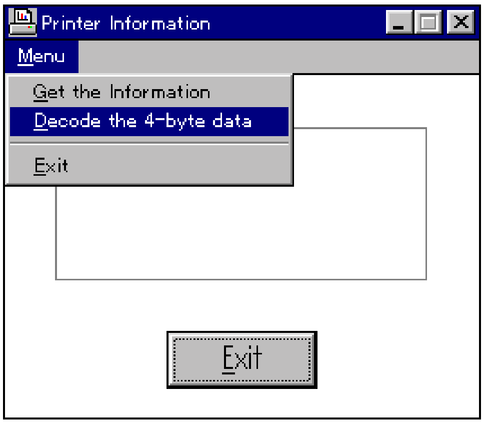


Fig. A-4

(3) Enter the 8-digit number as shown on the right from the 17-digit number.

(4) Click the **OK** button.

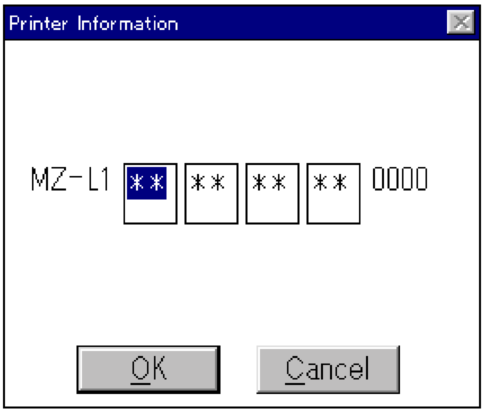


Fig. A-5

(5) The dialog box shown at the right will appear and show the frequencies of drum unit change, toner cartridge change and paper jam.

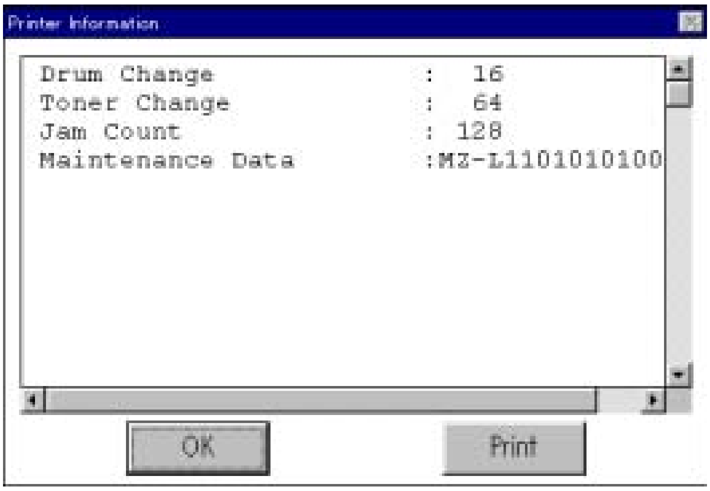


Fig. A-6

<u>If the printer is connected to a parallel port, you can take the following steps;</u>

(1) Open the Maintenance Information utility, then select 'Get the Information' in the menu.

*(2) Select the LPT port you are using and click the **OK** button.*

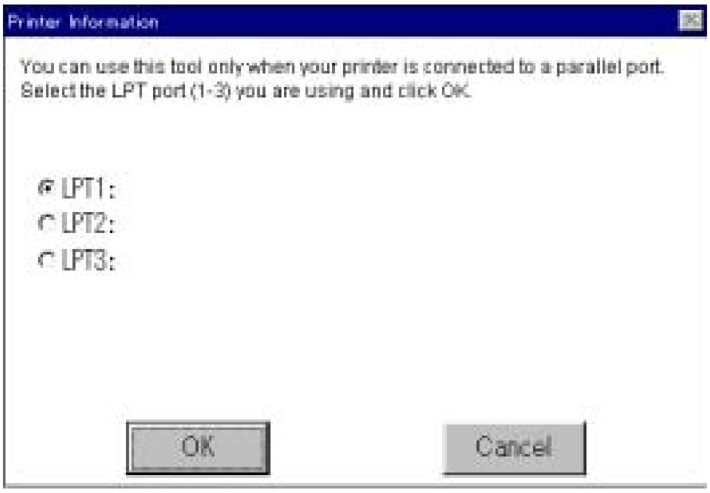


Fig. A-7

*(3) Click the **Exit** button.*

(4) The dialog box will appear and show the frequencies of drum unit change, toner cartridge change and paper jam.

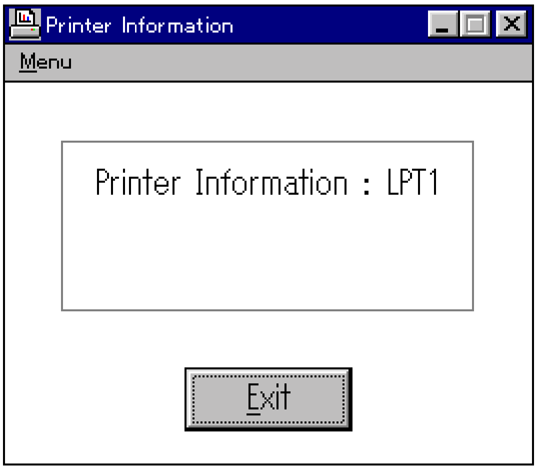


Fig. A-8

Note that each maintenance information is counted under the conditions below;

Information	Conditions
Drum unit change	When drum unit life is 100 pages or more, and the drum counter is reset. (Maximum counter: 63)
Toner cartridge change	When the toner cartridge is replaced after a Toner Empty error is stored in NVRAM, then warming-up completes without a Toner Empty or Toner Low error being detected. (Maximum counter: 127)
Paper jam	When a paper jam occurs. (Maximum counter: 2047)

APPENDIX 5. HOW TO USE THE SELF-DIAGNOSTICS TOOLS

Three self-diagnostics tools below are automatically installed when the printer driver is installed;

1) Troubleshooting for Printer won't print
2) Diagnostics
3) Printer Information

The following sections describe the details on each tool.

1. Troubleshooting for Printer won't print

This tool instructs you how to clear the problem such as 'The printer can't print' or 'The printer prints garbage or incorrect fonts'.

(1) When you start the program, the Help dialog box shown below appears.

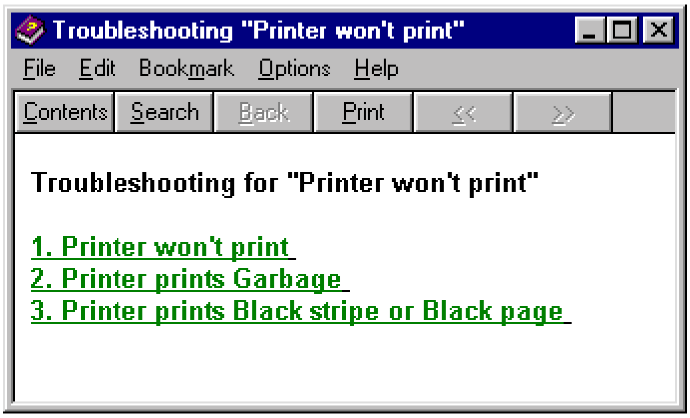


Fig. A-9

(2) Select the problem you have had, then the specified window appears.

(3) Follow the instructions that appear on the PC screen.

If the problem cannot be solved, start the "Diagnostics" tool to create a log file which should be sent to the authorized service center to investigate the cause of problem. For the details on the "Diagnostics" tool, see the following section, '2. Diagnostics'.

2. Diagnostics

This tool helps you to report your PC environment to investigate the cause of problem such as 'Printer won't print' or 'Printer prints garbage or incorrect fonts'. Before using this tool, however, you have to check if you can clear the problem using the 'Troubleshooting for printer won't print' tool described in the previous section.

(1) When you start the program, the dialog box shown below appears. Follow the steps described in the box, then click the **OK** button.

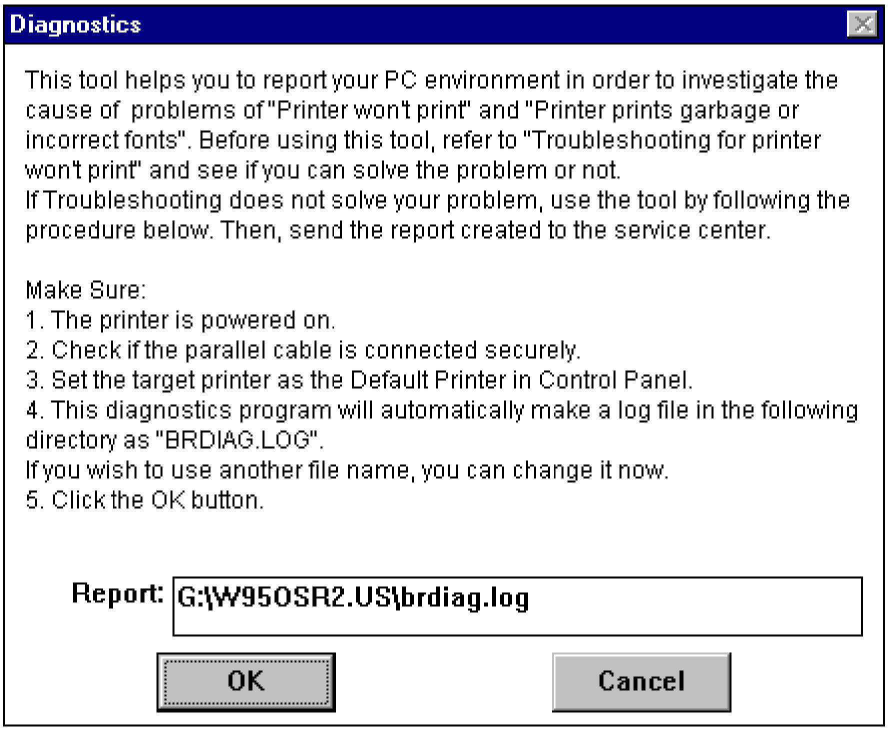


Fig. A-10

(2) The message below appears, click the **OK** button if you want to check whether there is any incorrect data or not. If you do not want to check it, click the **Cancel** button.



Fig. A-11

(3) If you click the **OK** button in Step 2, the dialog box below appears.

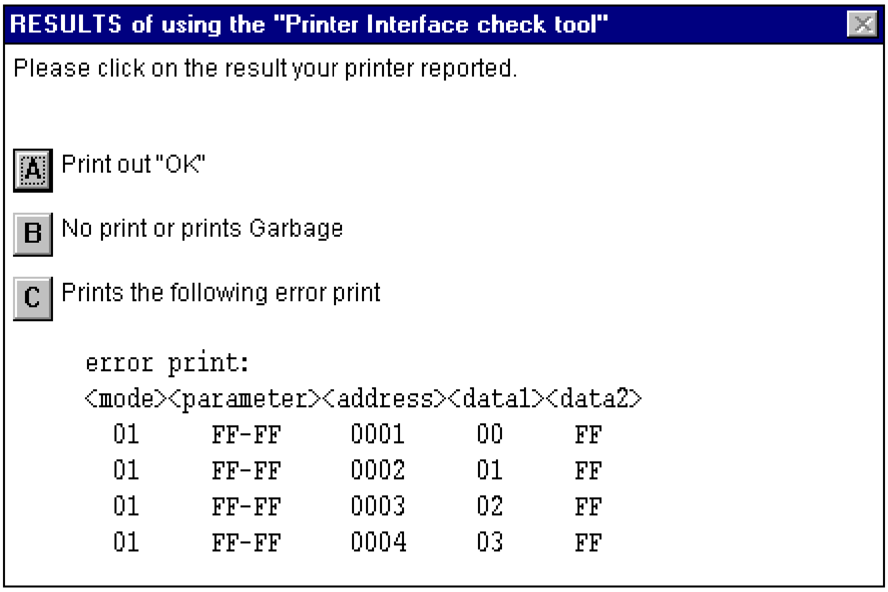


Fig. A-12

(4) Check the result that the printer reported and click the **A**, **B** or **C** button depending on the result.

(5) The created log file is shown on the PC screen. (The software will ask whether you wish to print the log file or not.)

Send the log file created with this tool to investigate the problem to the authorized service center.

3. Printer Information

The drum unit life or page counter is printed on Print Configuration (HL-1240/1250/1270N) or Test Print (HL-1030) in some countries as described in APPENDIX 4 'HOW TO KNOW DRUM UNIT LIFE & PAGE COUNTER'.

This tool also shows the printer information such as printer version or page counter for all models only when the printer is connected to a parallel port.

(1) When you start the program, the dialog box shown below appears.

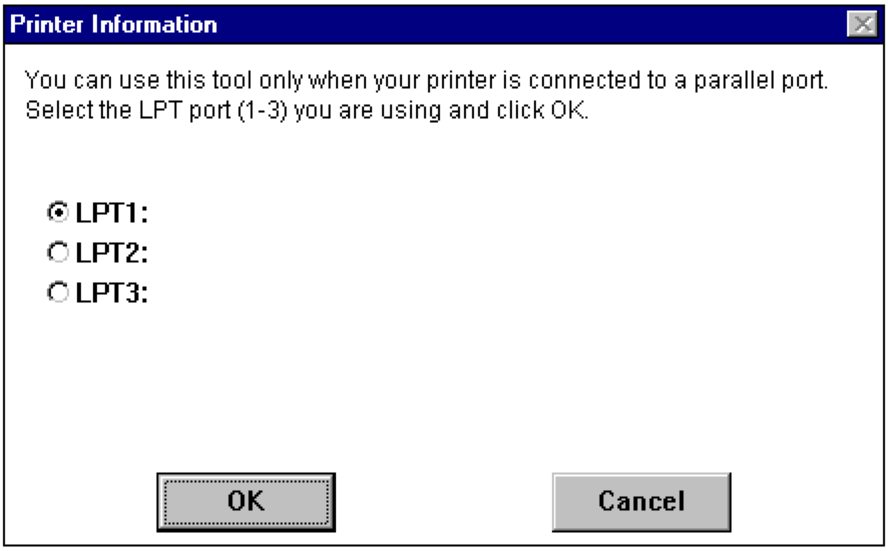


Fig. A-13

(2) Select the LPT port you are using and click the **OK** button.

(3) The dialog box below appears and indicates the printer information, printer ID, version, drum unit life, page counter and drum counter.

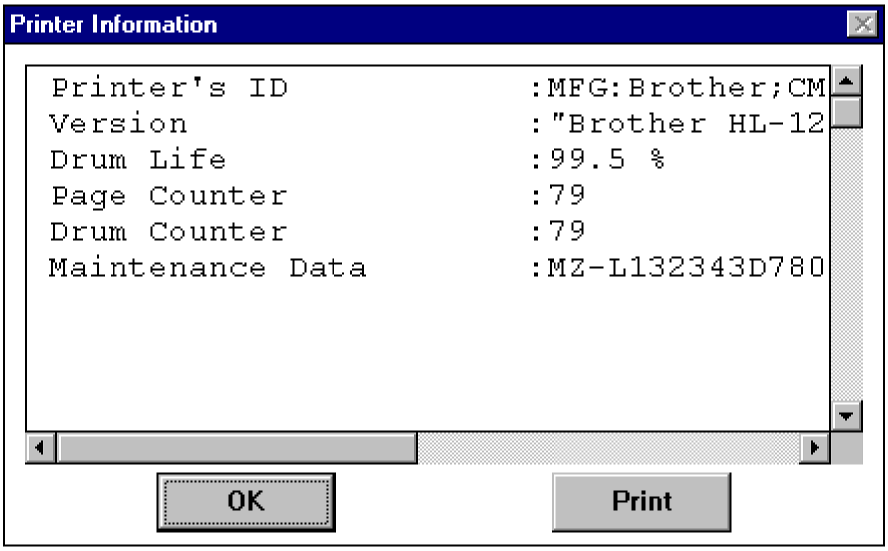


Fig. A-14

NOTE:

For how to read the Maintenance Data shown in the dialog box above, see Section 3 'How to Read the Maintenance Information' in APPENDIX 4.

APPENDIX 6. NVRAM DEFAULT VALUE

The default values for the main items to be set in NVRAM are as follows;

Items	Descriptions
Timing of Drum LED ON	16,000 page (Counted from the drum unit life.)
Development switching timing	The developing bias is switched from 475V to 375V when 3,000 pages are printed. (Counted from the number of the drum rotation in non-continuous printing)
Fixing temperature	• Transparency: 163°C • Thin paper: 183°C • Regular paper: 195°C • Thick paper: 215°C • Thicker/Bond paper: 215°C (in non-continuous printing)
Smaller size mode	See APPENDIX 3 'PRINT SPEEDS WITH VARIOUS SETTINGS'.

APPENDIX 7. PAPER CASSETTE INFORMATION (FOR EUROPE ONLY)

The A4 size paper cassette fitted to the printer is different from the service manual information for printers shipped to Europe as follows:-

(1) The paper cassette supplied with the HL-1030/1240/1250/1270N printer has a plastic rib on the paper tray cover.

(2) The plastic rib is removed from the tray cover for the paper cassette supplied with the LT-400, (optional Lower Tray Unit) as shown on the right;

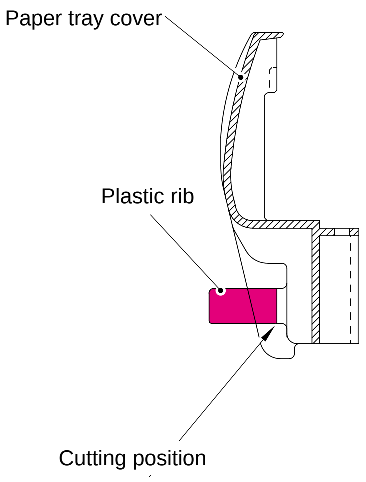


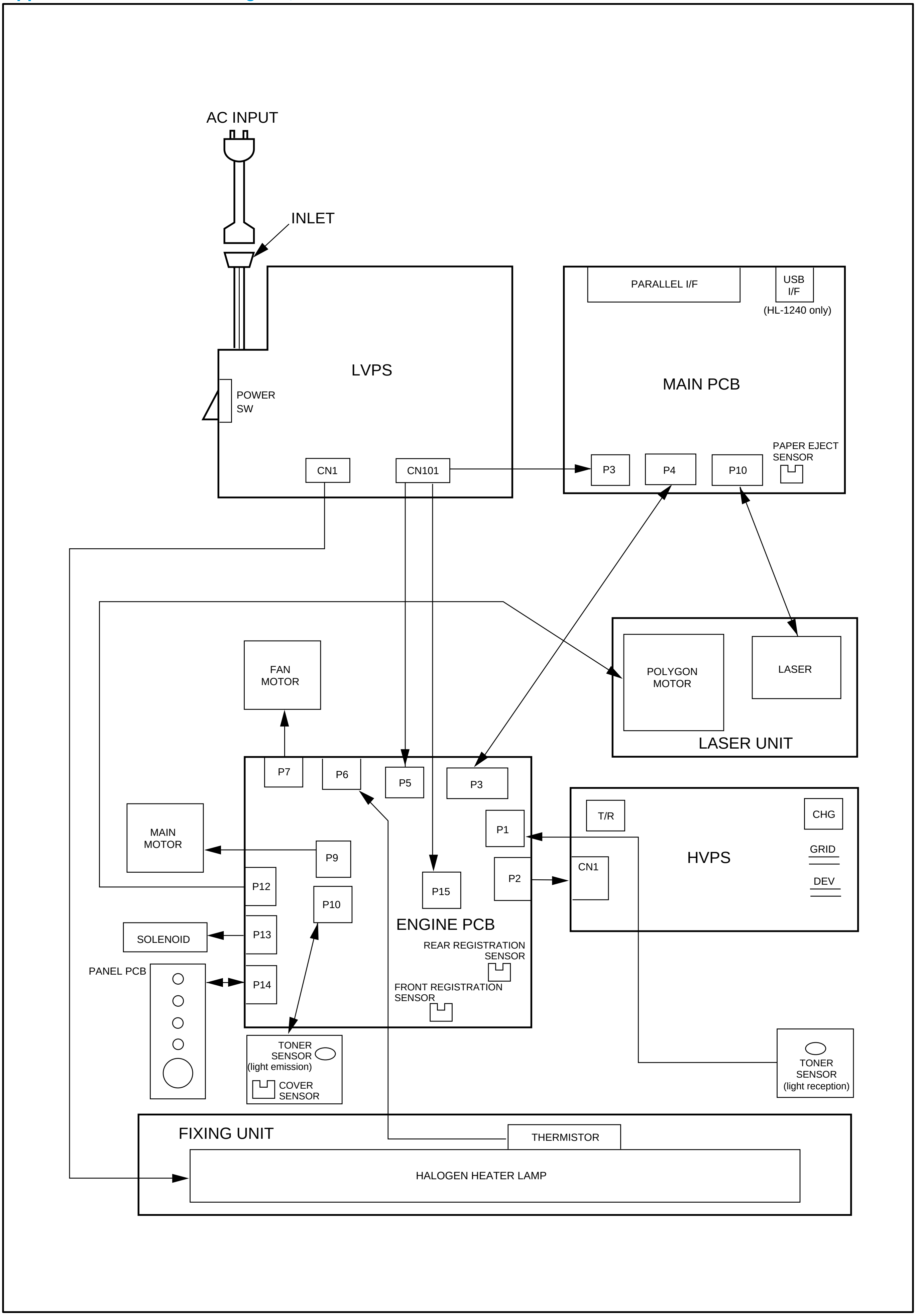
Fig. A- 15

(3) If the optional LT-400 Lower Tray Unit is installed onto the HL-1250/1270N printer, it is necessary to exchange the cassette supplied with the LT-400 Unit with the upper cassette already fitted into the printer. Install the cassette originally fitted in the printer into the LT-400 Unit.

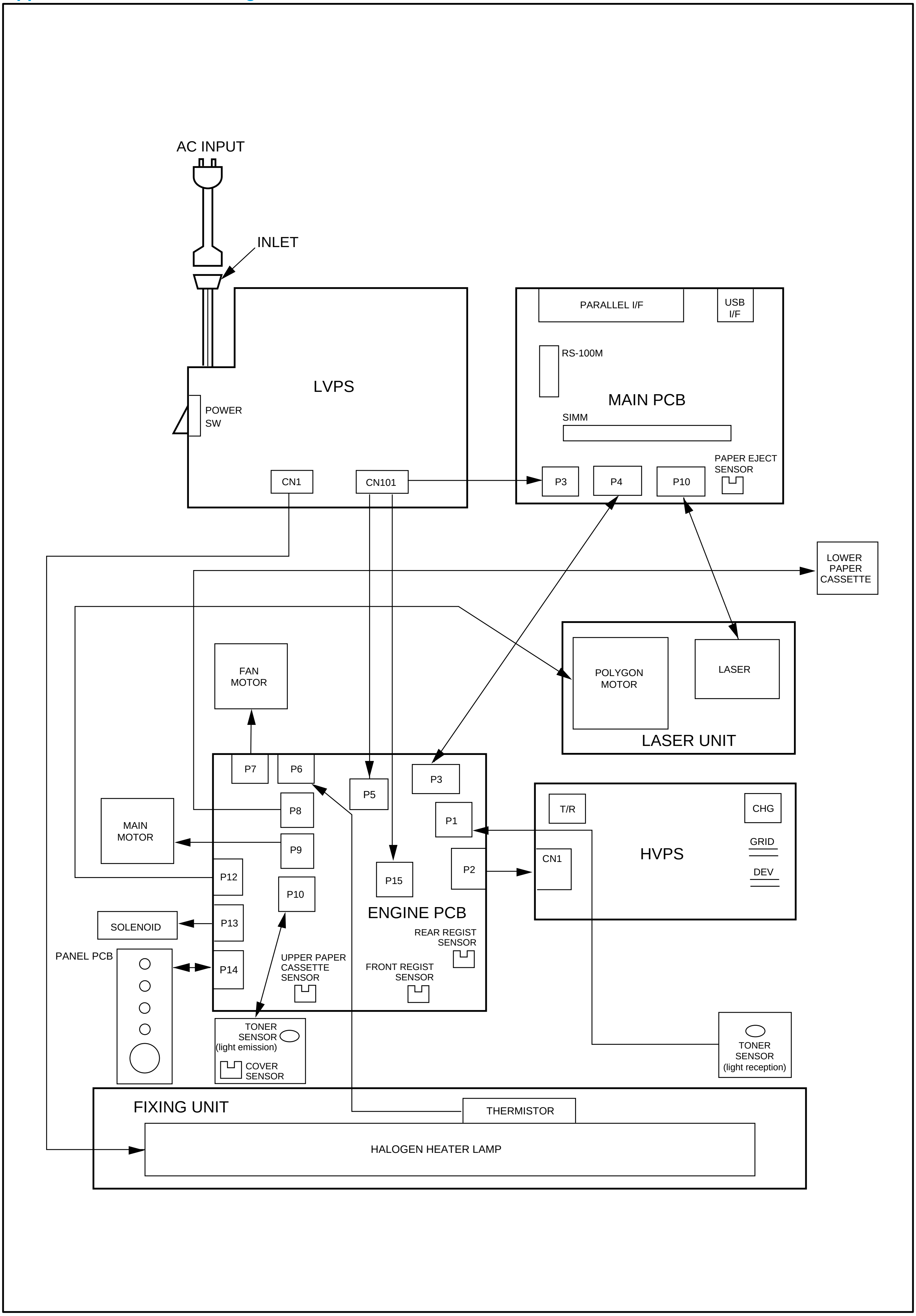
Failure to do so will cause paper jams as the paper cannot be fed from the lower cassette to the printer body because the plastic rib on the paper tray cover is blocking the paper path.

(4) For paper cassettes supplied as spare parts, the plastic rib has been cut off so that you can use it as both an upper cassette and lower cassette.

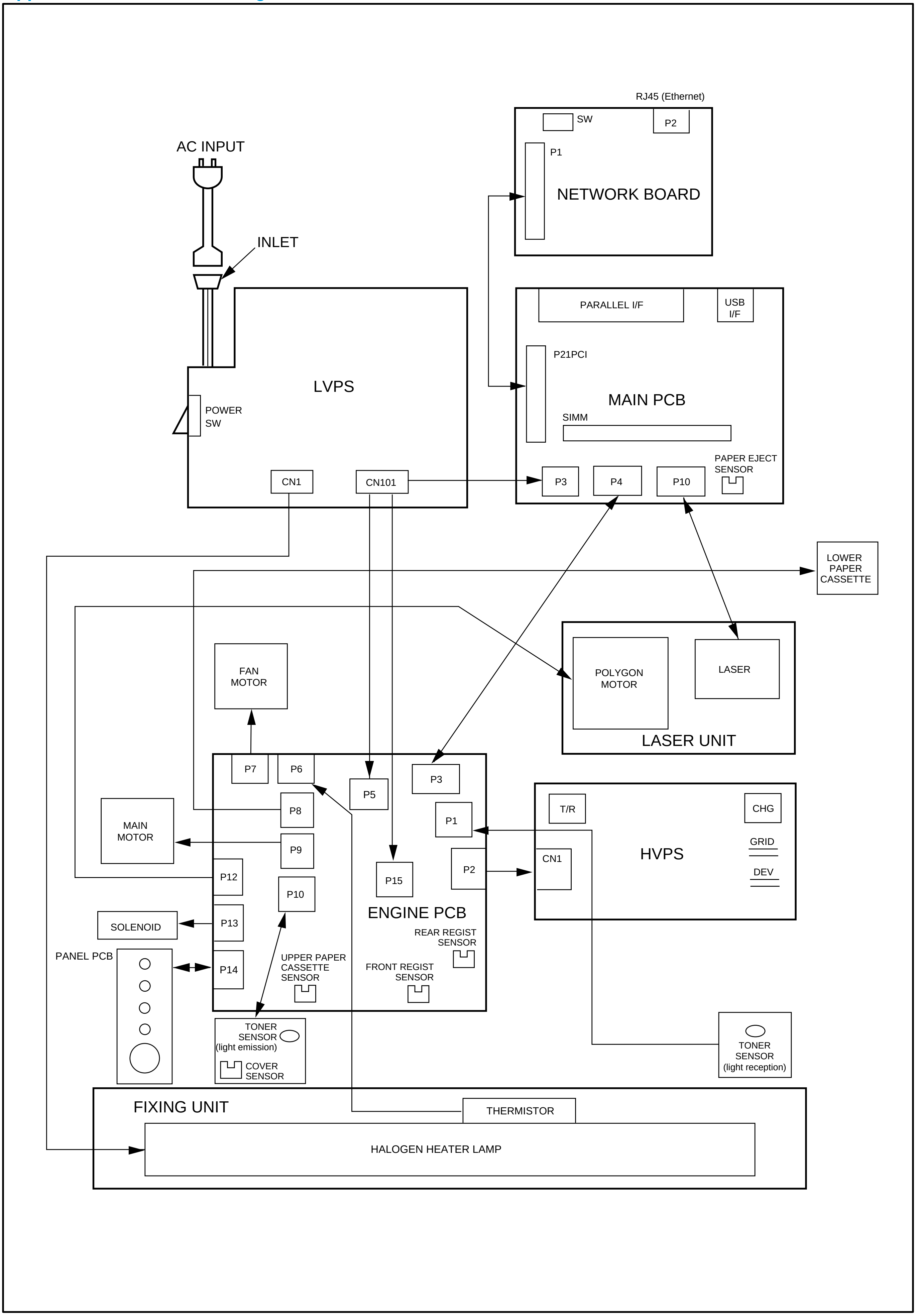
Appendix 8. Connection Diagram, HL-1030/1240



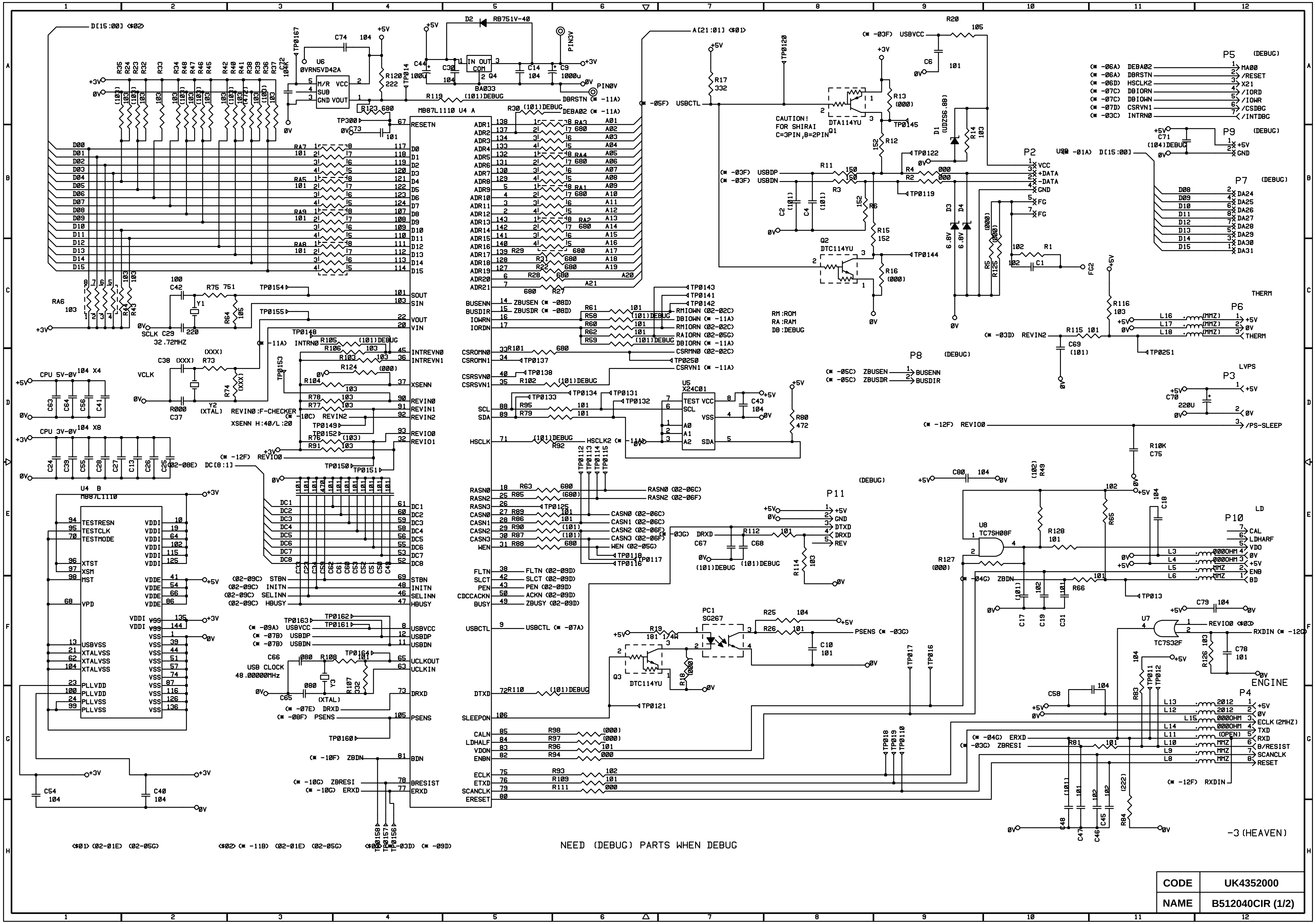
Appendix 9. Connection Diagram, HL-1250

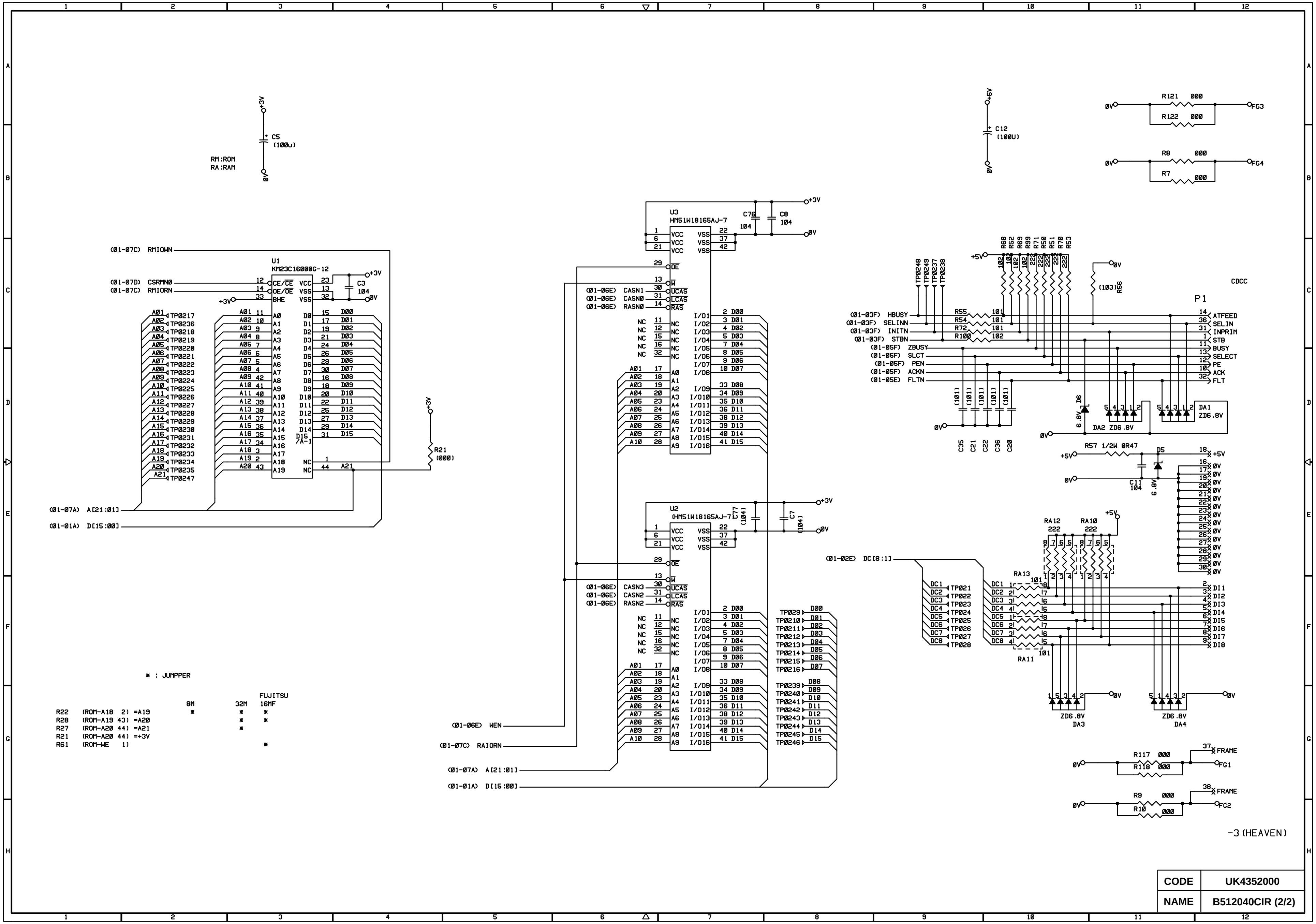


Appendix 10. Connection Diagram, HL-1270N

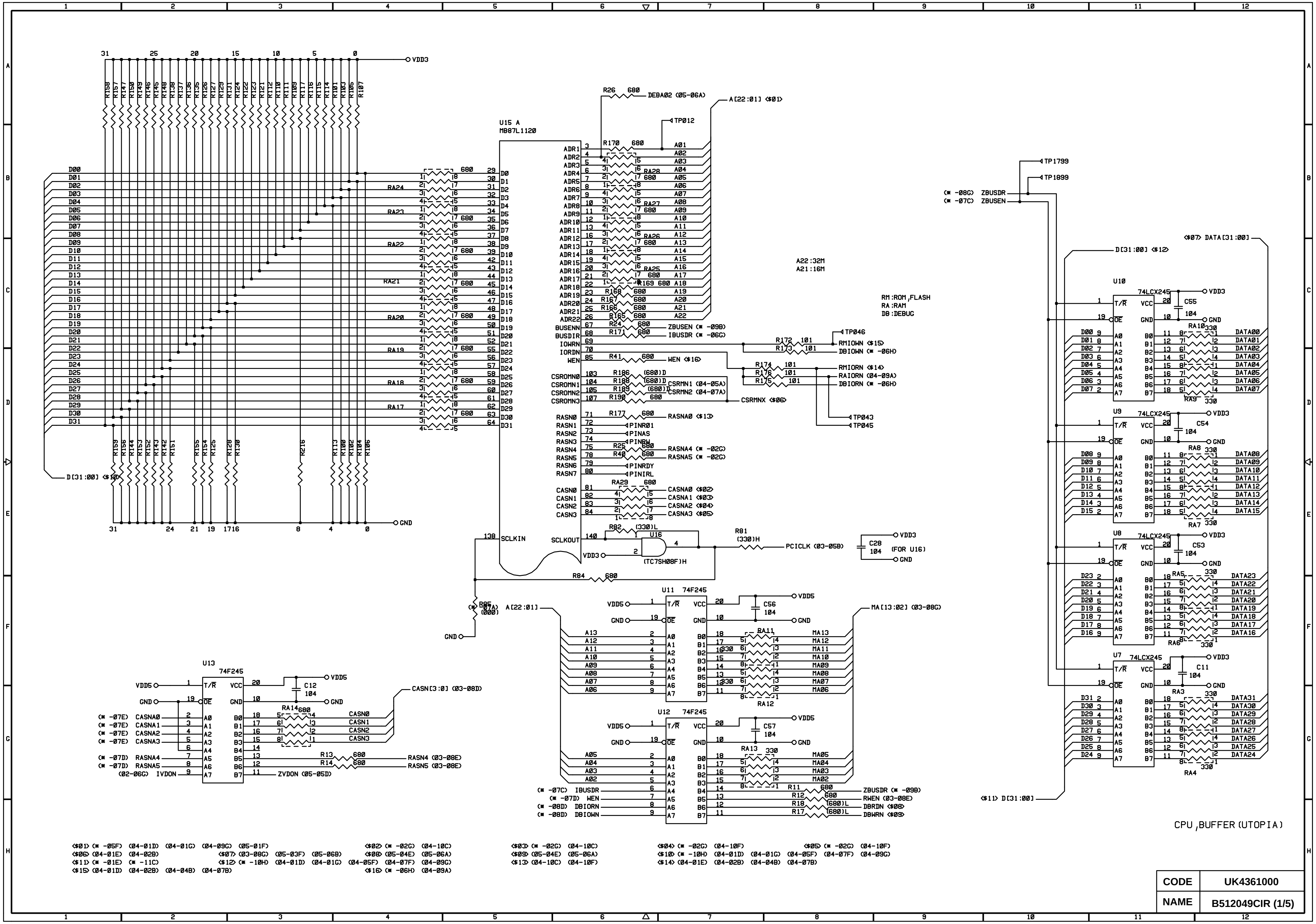


Appendix 11. Main PCB Circuit Diagram, HL-1030/1240 (1/2)

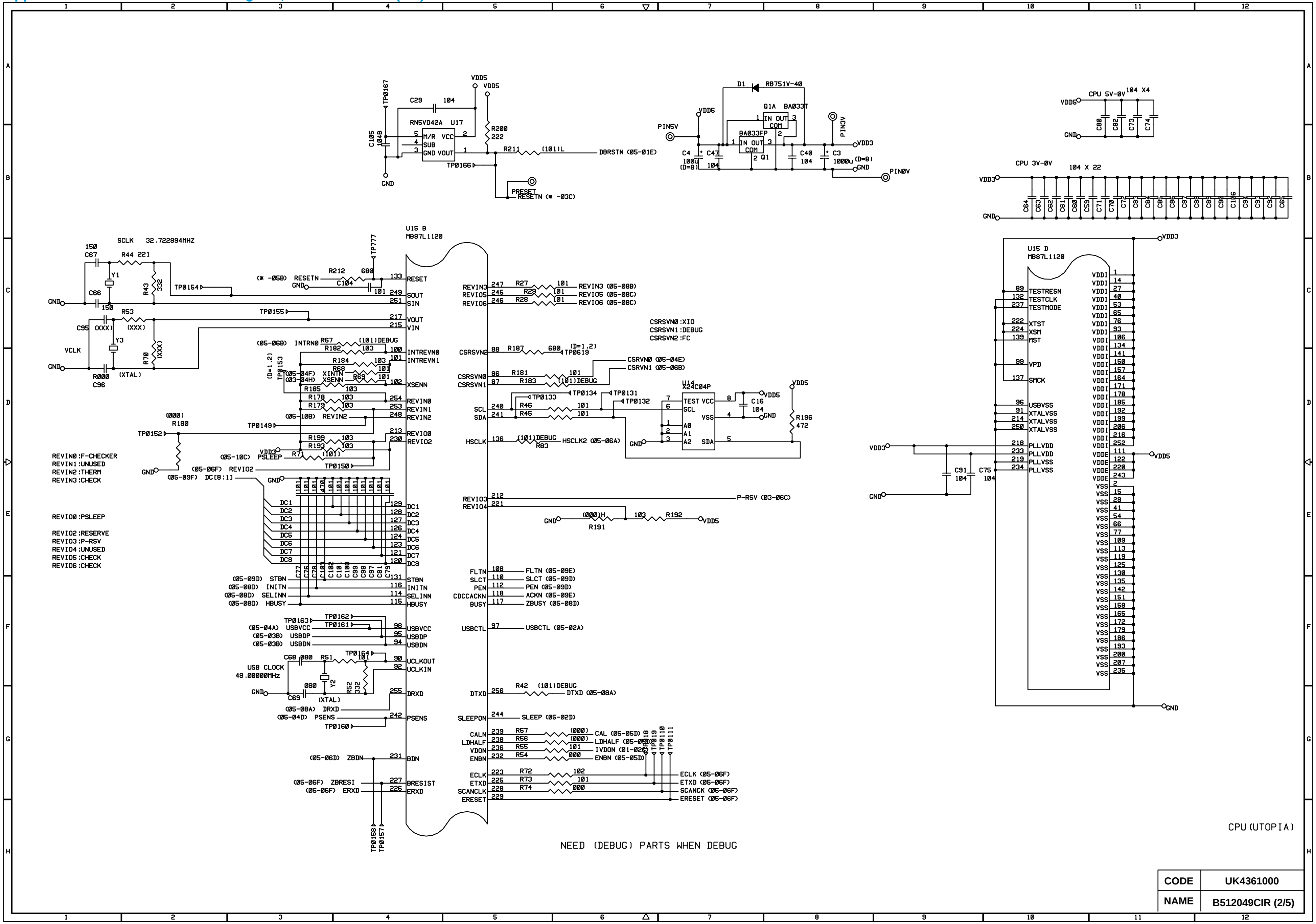




CODE	UK4352000
NAME	B512040CIR (2/2)

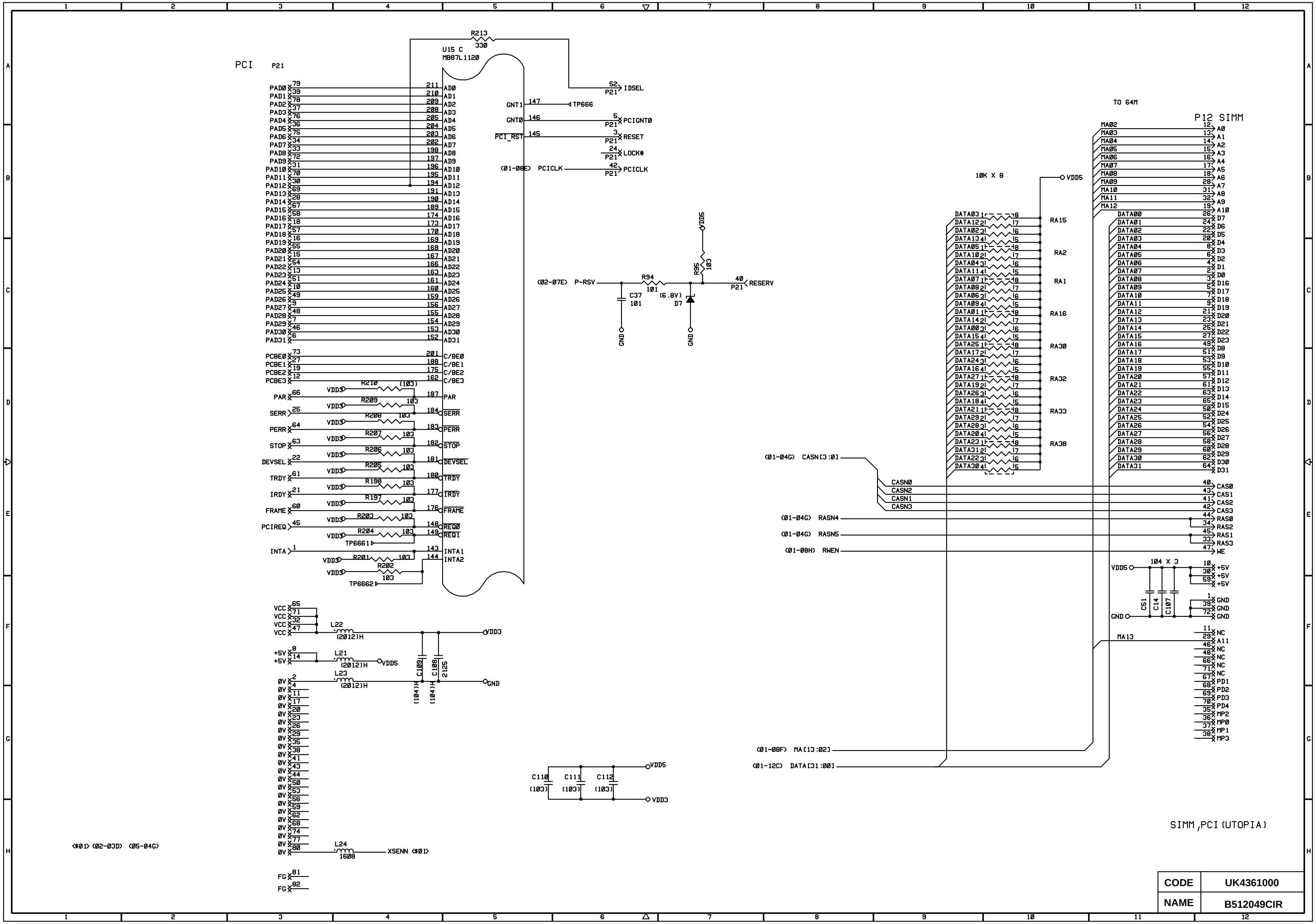


CODE	UK4361000
NAME	B512049CIR (1/5)

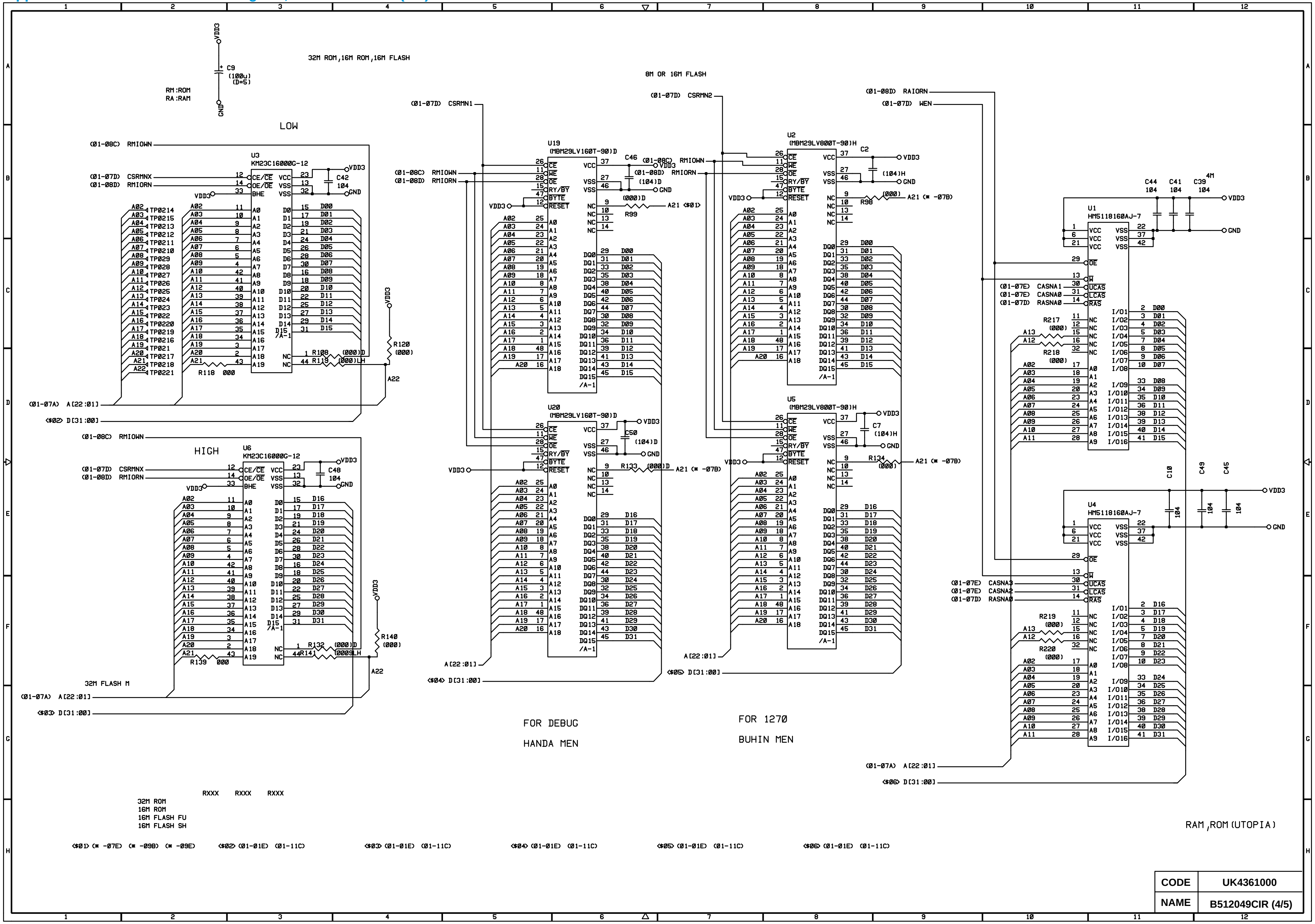


CODE	UK4361000
NAME	B512049CIR (2/5)

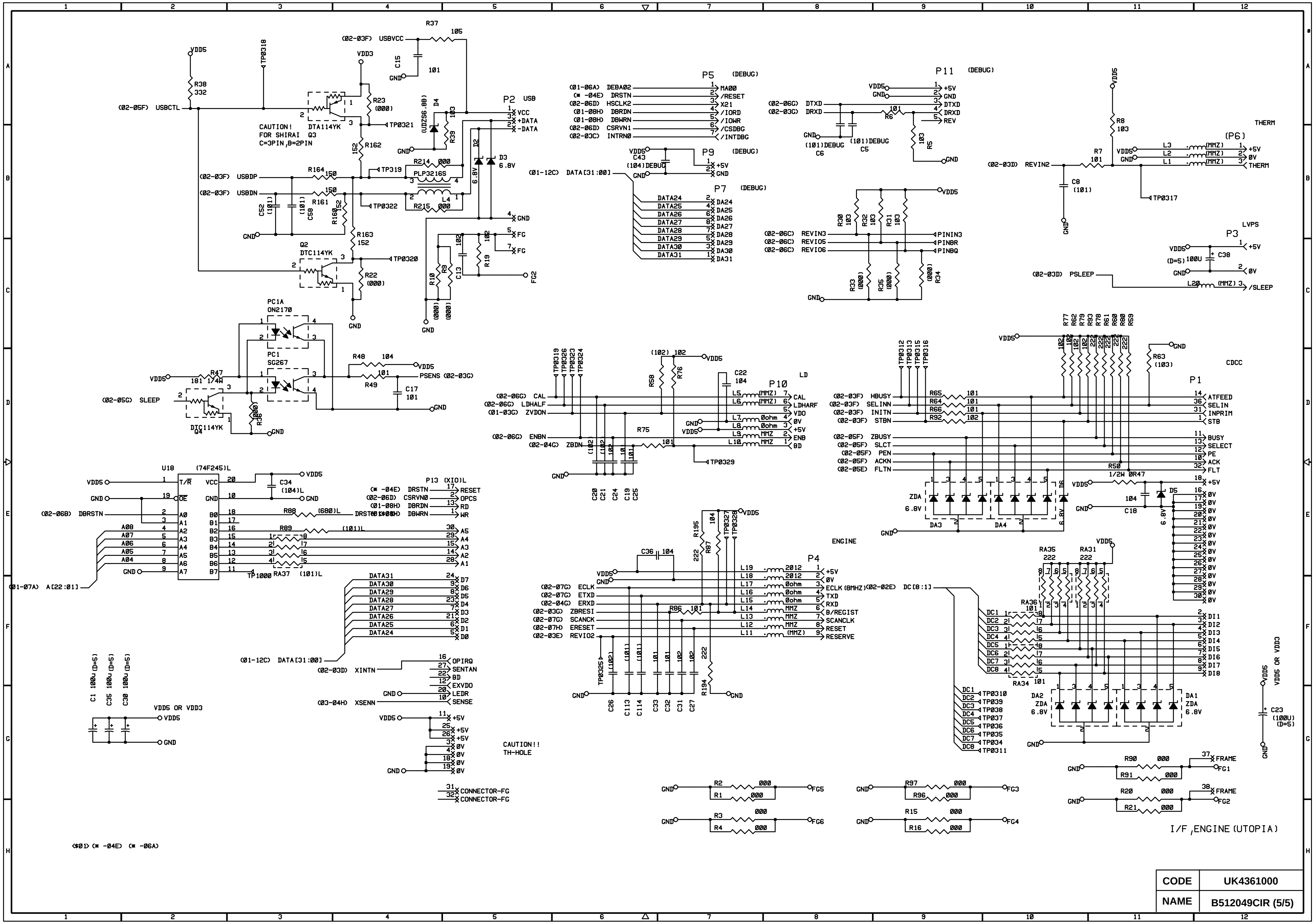
Appendix 15. Main PCB Circuit Diagram, HL-1250/1270N (3/5)



CODE	UK4361000
NAME	B512049CIR

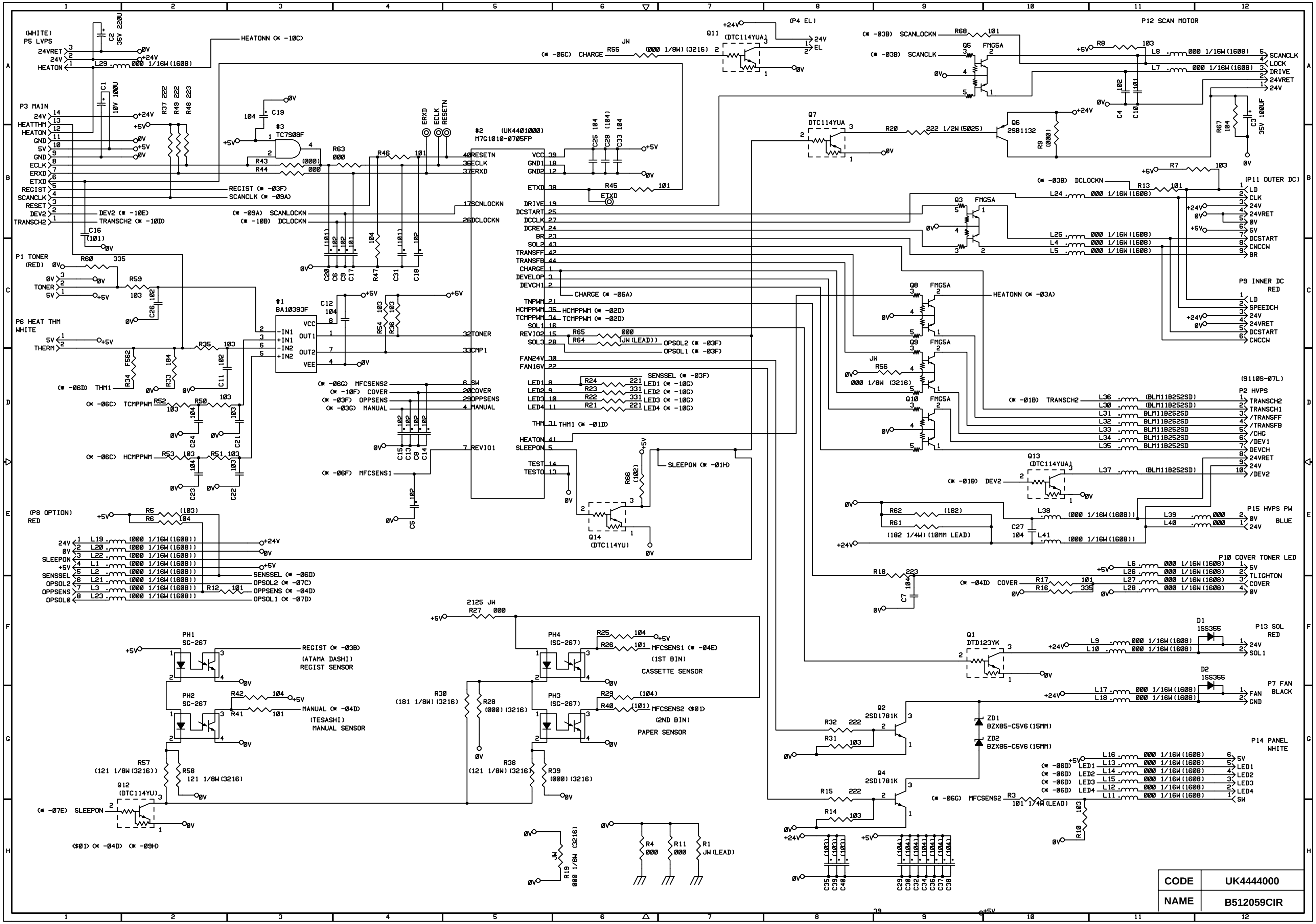


CODE	UK4361000
NAME	B512049CIR (4/5)

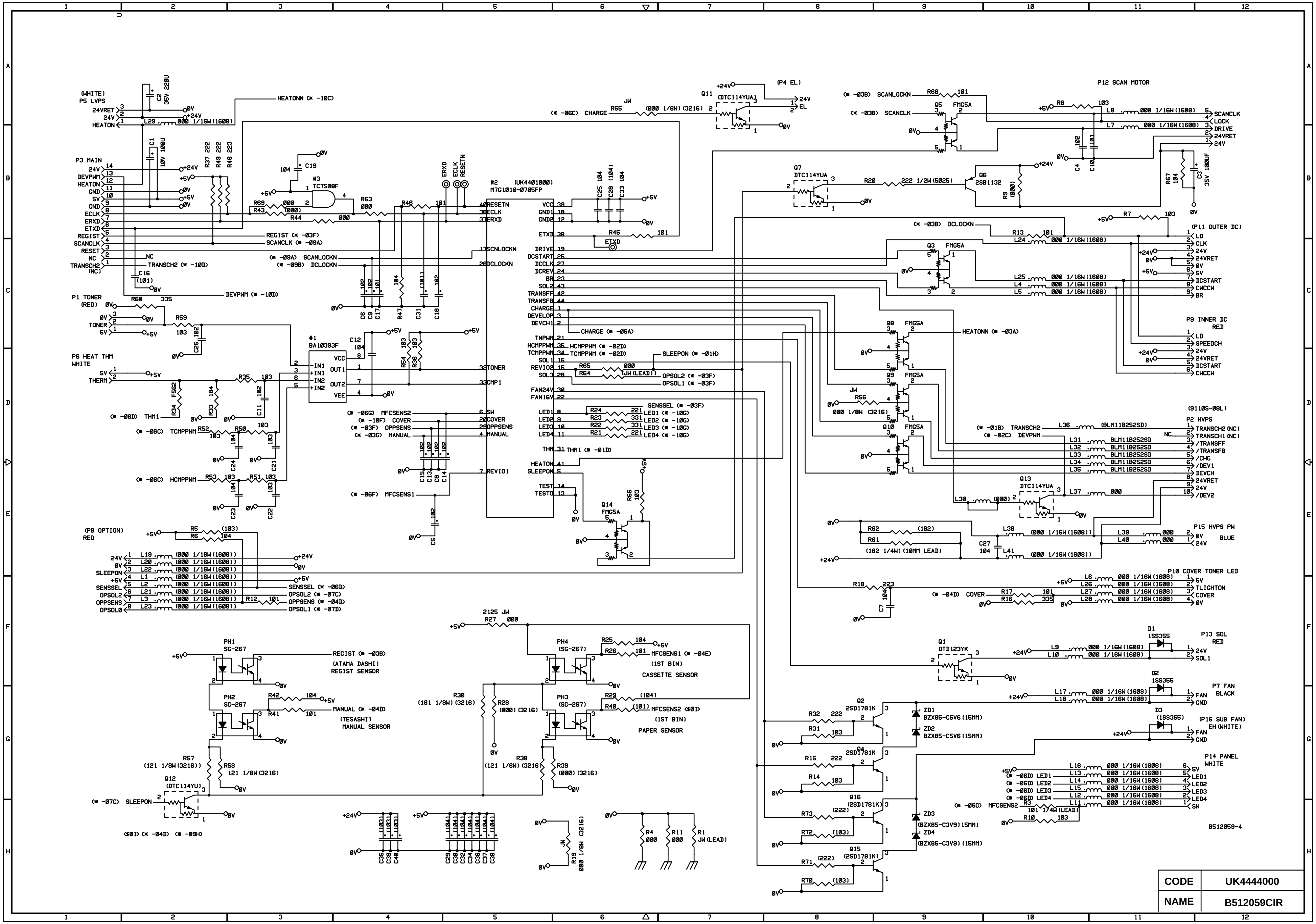


CODE	UK4361000
NAME	B512049CIR (5/5)

Appendix 18A. Engine PCB Circuit Diagram (OLD)

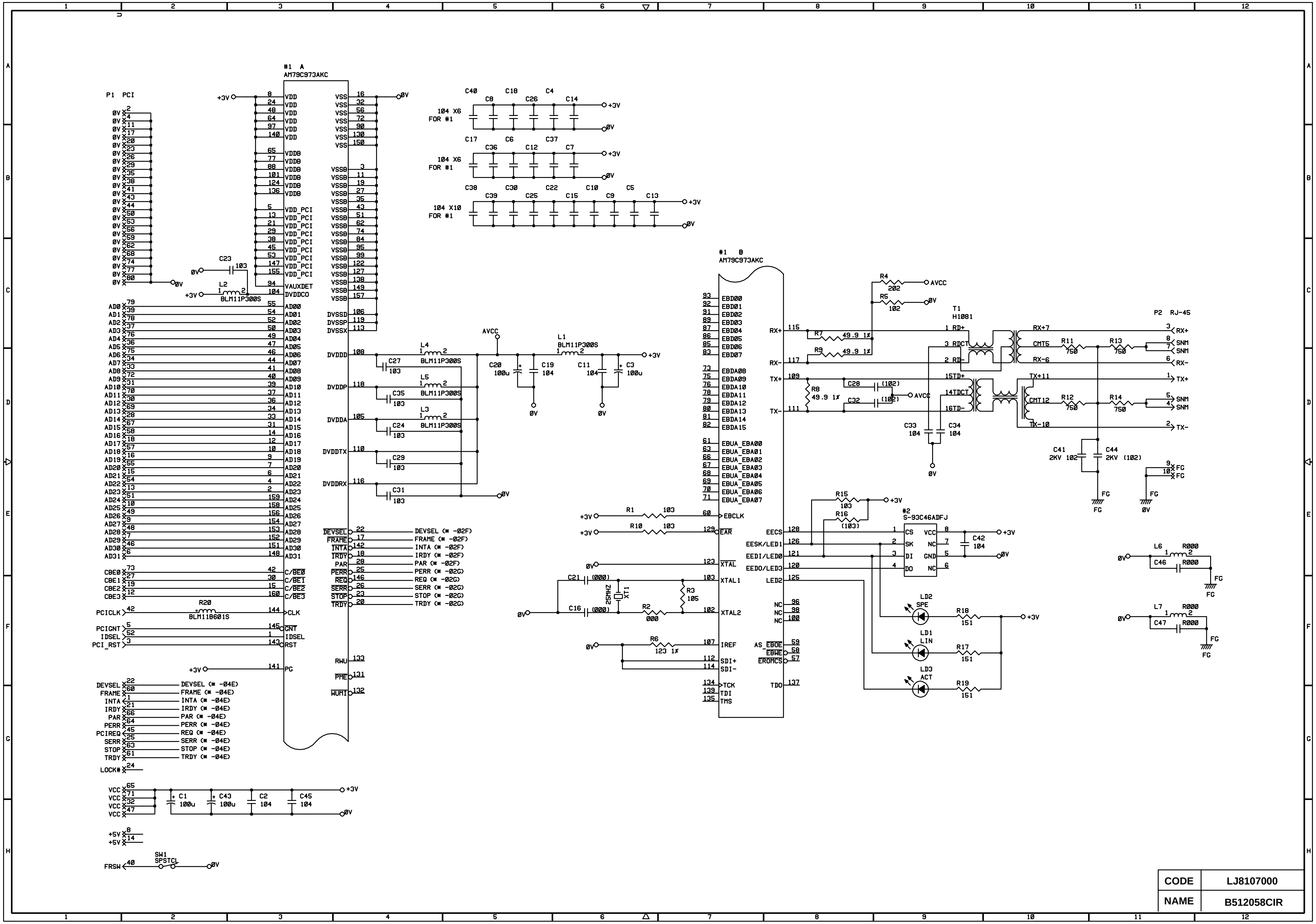


Appendix 18B. Engine PCB Circuit Diagram (NEW)



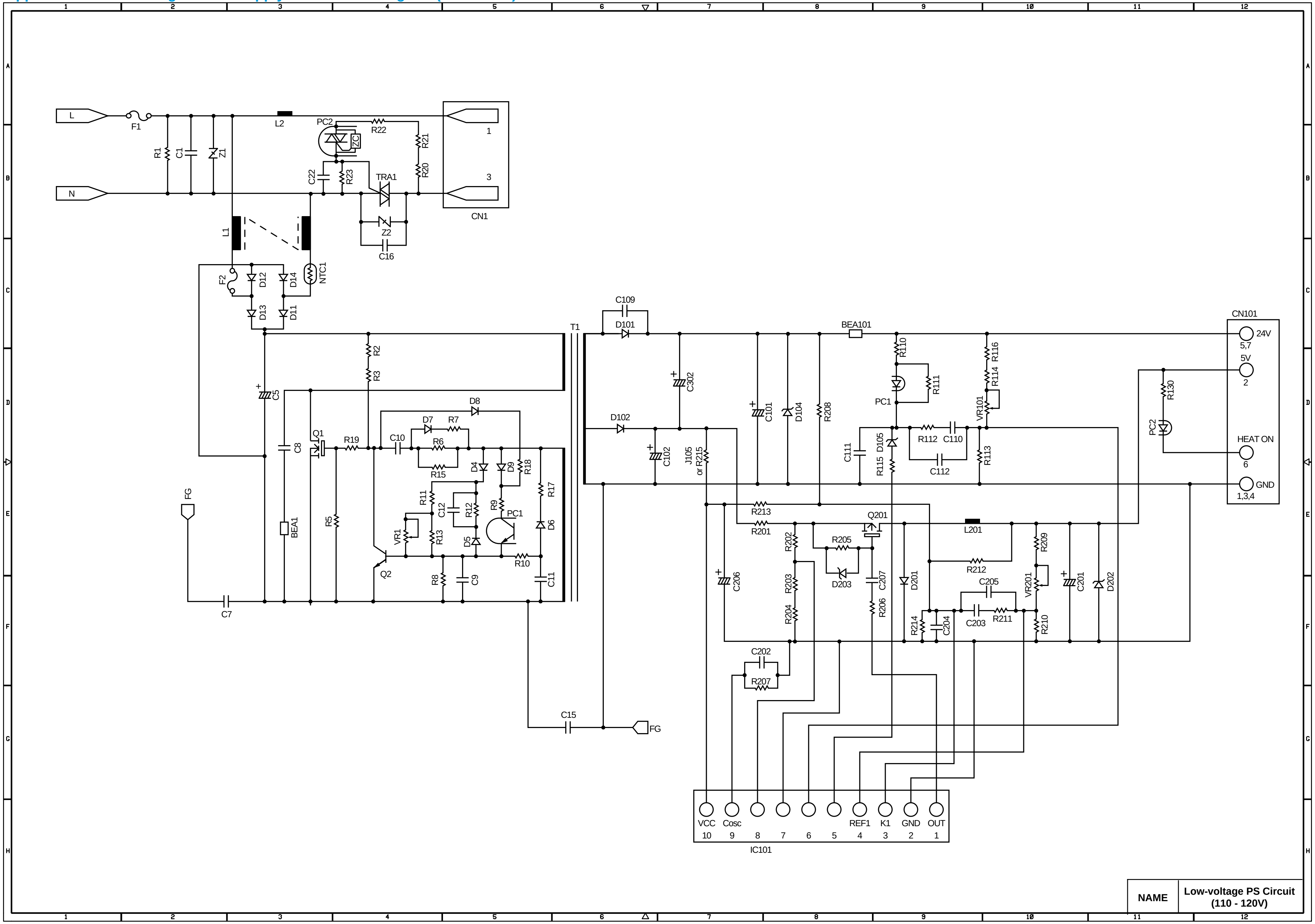
CODE	UK4444000
NAME	B512059CIR

Appendix 19. Network Board Circuit Diagram, HL-1270N



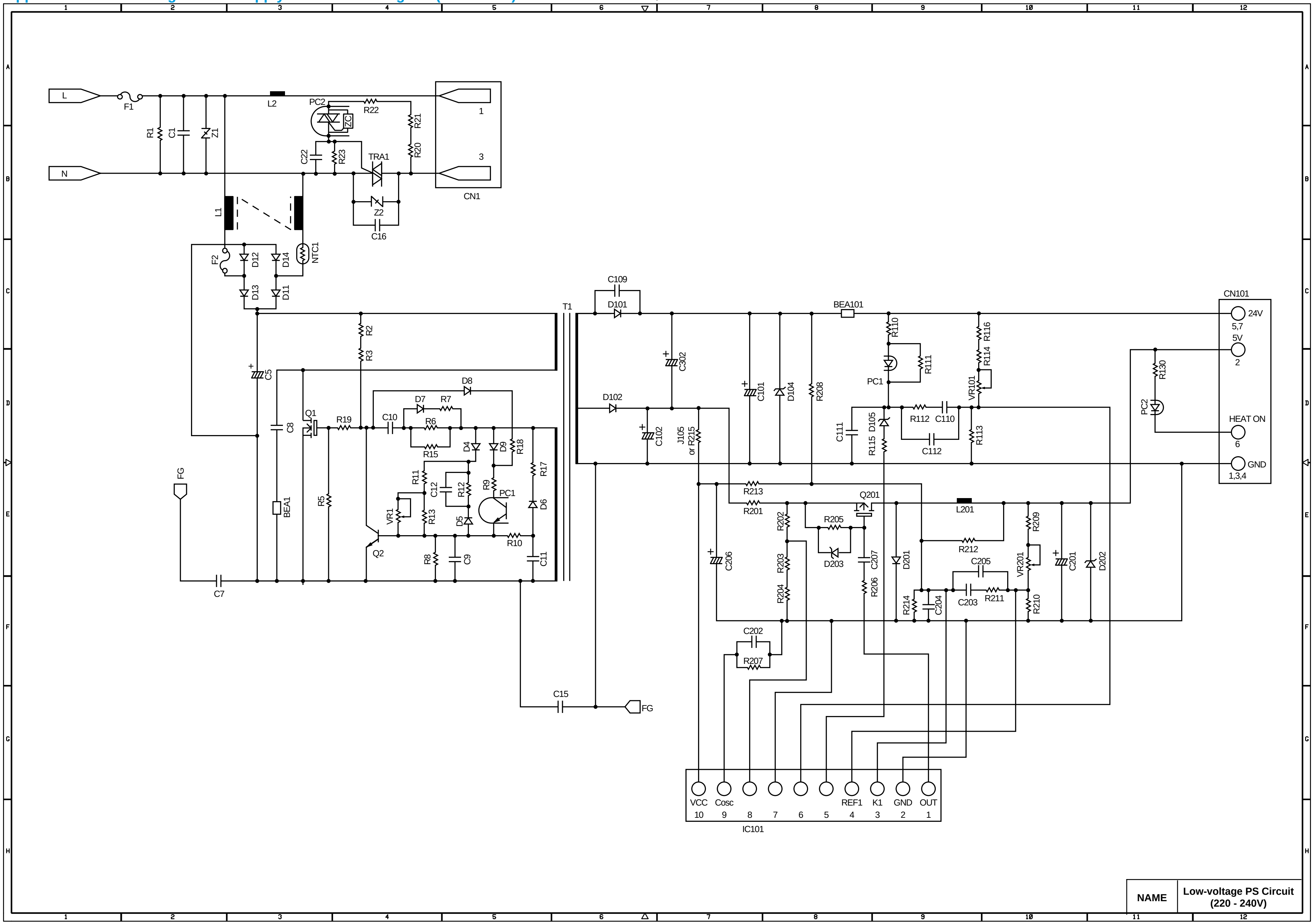
CODE	LJ8107000
NAME	B512058CIR

Appendix 20. Low-voltage Power Supply PCB Circuit Diagram (110 - 120V)

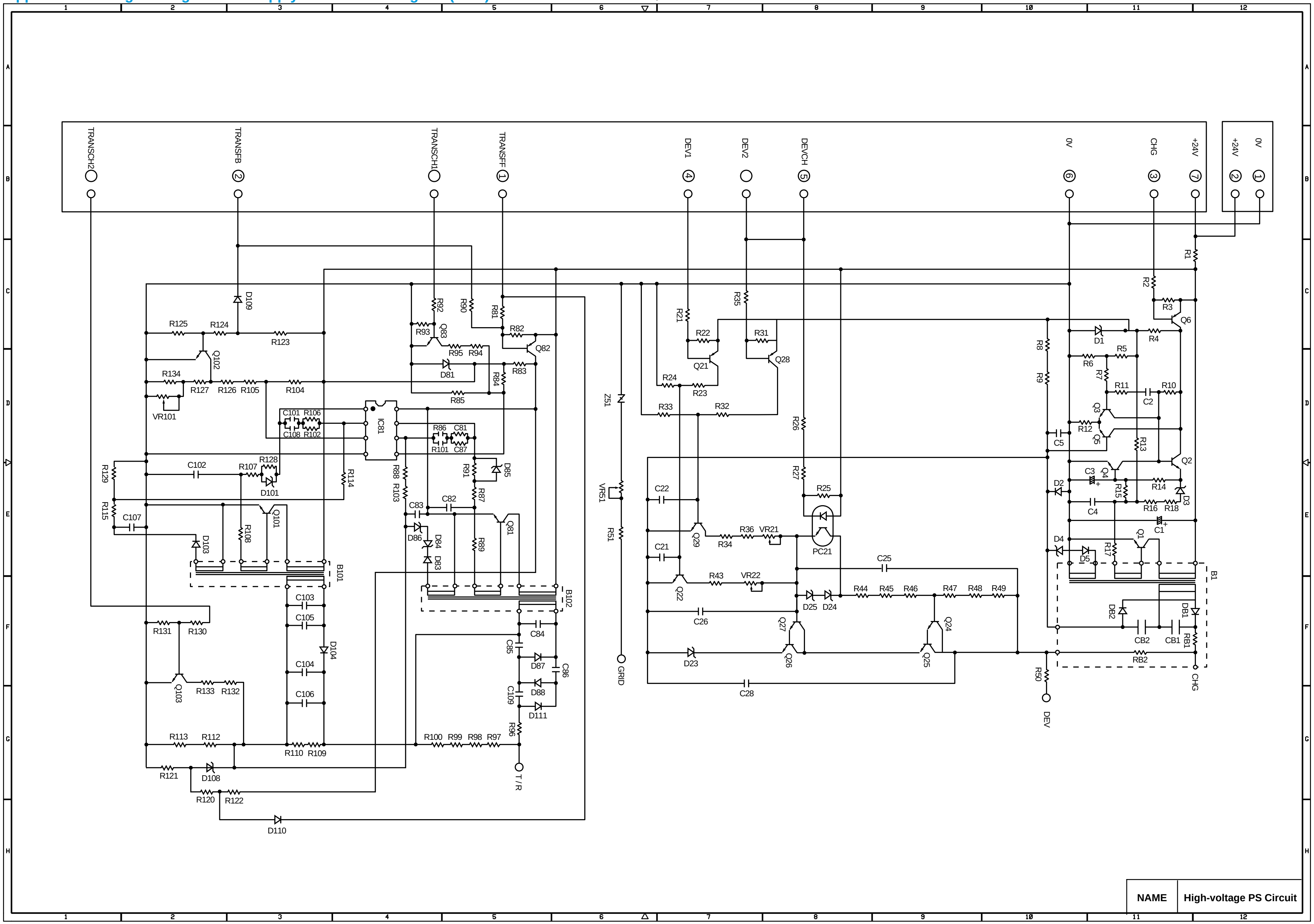


NAME	Low-voltage PS Circuit (110 - 120V)

Appendix 21. Low-voltage Power Supply PCB Circuit Diagram (220 - 240V)

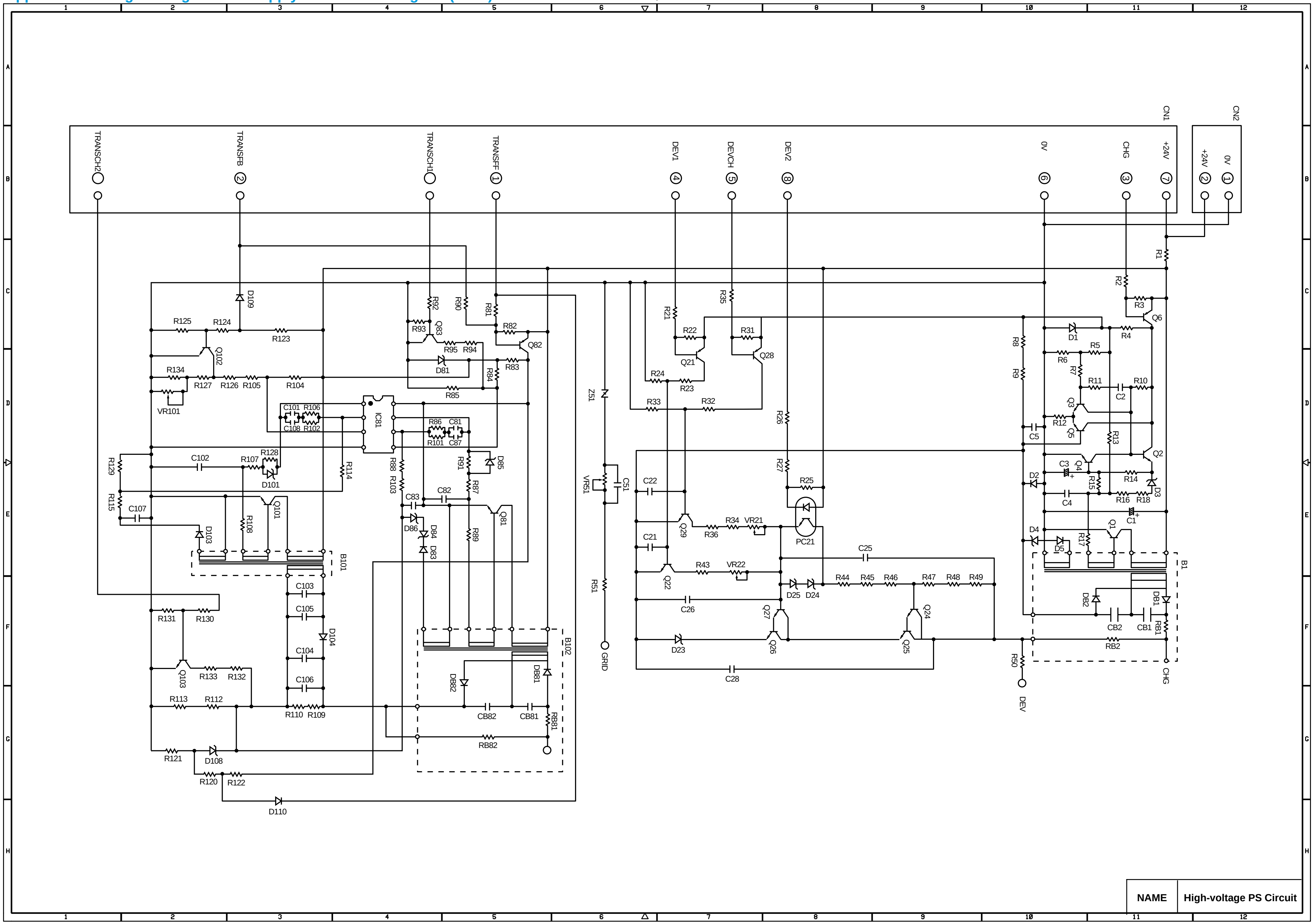


Appendix 22A. High-voltage Power Supply PCB Circuit Diagram (OLD)



NAME	High-voltage PS Circuit

Appendix 22B. High-voltage Power Supply PCB Circuit Diagram (NEW)



NAME	High-voltage PS Circuit

PR99174

APPENDIX 23. DIFFERENCES BETWEEN OLD & NEW VERSIONS OF HVPS & ENGINE PCB

The high-voltage power supply PCB and engine PCB have been upgraded since the production in the middle of September, 1999 in order to improve print quality. In accordance with the change, the T/R electrode helical spring and plastic chute have been also changed.

This section describes the differences between the old and new versions of those parts so that the service technician can identify the old or new version at a glance.

High-voltage power supply PCB / Engine PCB

Check the pin number of the connector on one of the high-voltage power supply PCB and engine PCB, which connects those two PCBs. While the old version has 7 pins, the new version has 8 pins. The figure below indicates the connector on the Engine PCB.

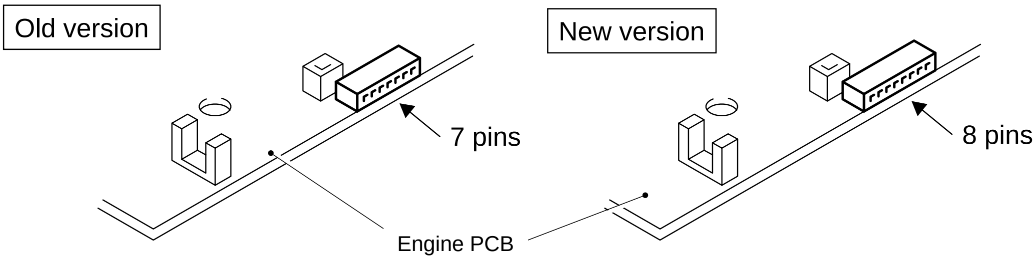


Fig. A- 16

T/R electrode helical spring / Chute

The size of the T/R electrode helical spring is different between the old and new versions. While the spring is assembled onto the big boss on the plastic chute for the old version, it is assembled onto much smaller boss on the chute for the new version. Note that the assembled position of the spring is also different.

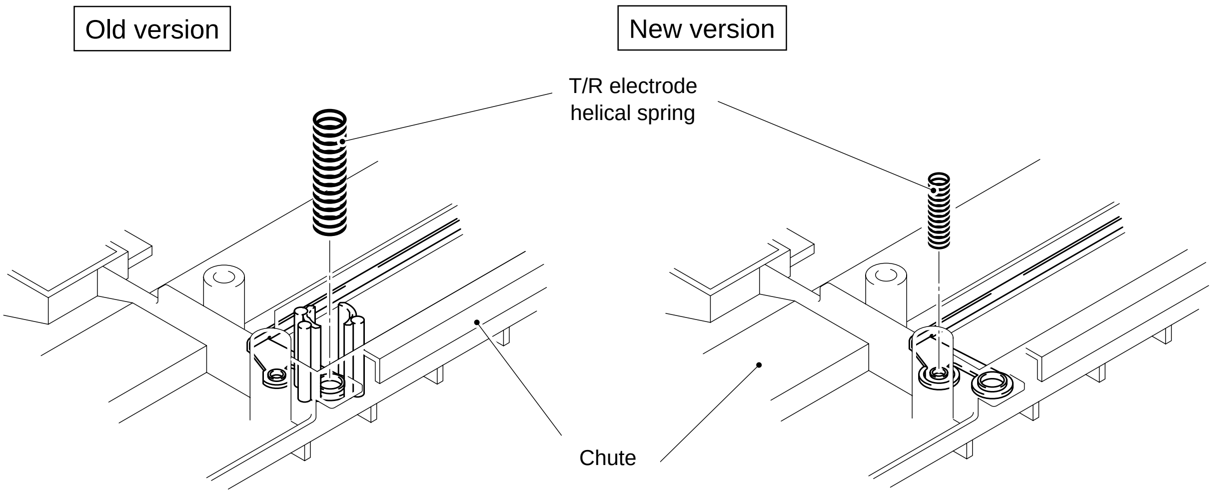


Fig. A- 17

INDEX

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A

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C

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E

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G

H

I

Q

R

S

T

U

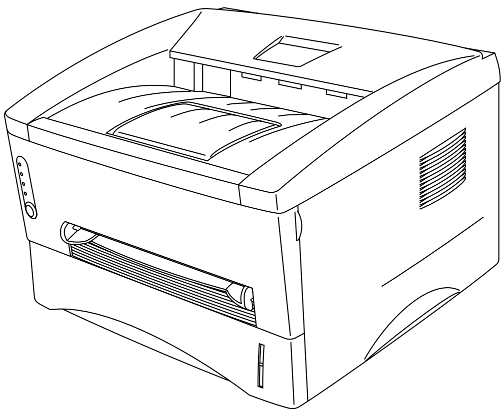
W

brother

Brother Laser Printer

PARTS REFERENCE LIST

MODEL: HL-1030/1240/1250/1270N



Read this list thoroughly before maintenance work.

Keep this list in a convenient place for quick and easy reference at all times.

September, 1999
PL-PRN001

NOTE FOR USING THIS PARTS REFERENCE LIST

1. In the case of ordering parts, it needs mentioning the following items:

   (1) Code

   (2) Q'ty

   (3) Description

   (4) Symbol (PCB No., Revision , and Parts location mounted on the PCB.)

   Note : No orders without Parts Code or Tool No. can be accepted.

< Example >

	(1)	(2)	(3)	(4)	
REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK

Revision No.: marked on the main printed circuit board.

B48K056 - 201A

- A — Design change indication
- 1 — Specification No .
- 20 — Pattern alteration No.
- B48K056 — Circuit board No.

Revision No.: marked on the power supply printed circuit board.

Rev. A

- A — Design change indication (The first version has no sign.)

2. Design-changed parts :

   If the parts are changed, any one of the following symbols is indicated in the REMARKS column.

   #A : compatible between old and new

   #B : replaceable from old to new

   #D : incompatible

   # : newly established

3. The original of this list was made based on the information available in September, 1999.

4. Parts are subject to change in design without prior notice.

CONTENTS

1. FRAME / DRIVE UNIT

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	UL9311001	1	MAIN MOTOR ASSY		
2	087320616	4	TAPTITE, CUP S M3X6		
3	LJ4069001	1	SOLENOID ASSY		
4	000300415	1	SCREW, BIND M3X4		
5	LJ4432001	1	TAPE 32X12		
6	UL8984001	1	LINK		
7	LJ4745001	1	FAN MOTOR UNIT		
8	UL9099001	1	TONER EMPTY PCB UNIT (LIGHT EMISSION)	B512038	
9	UK4405001	1	PANEL PCB ASSY	B512048	
10	087320616	3	TAPTITE, CUP S M3X6		
11	UL8507001	4	RUBBER FOOT		
12	UL9104001	1	TONER EMPTY PCB UNIT (LIGHT RECEPTION)	B512037	
13	087320616	1	TAPTITE, CUP S M3X6		
14	LJ8031001	1	LT RELAY PCB ASSY, HL-1250/1270N	B512060	
15	087320616	1	TAPTITE, CUP S M3X6		
16	LE1169001	1	USB GROUND PLATE, HL-1270		
17	UL8970001	1	SOLENOID RELEASE SPRING 30/99		
18	LJ5591001	1	PLANET GEAR ASSY (SP)		
19	UL8985001	1	GEAR 59		

MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-010

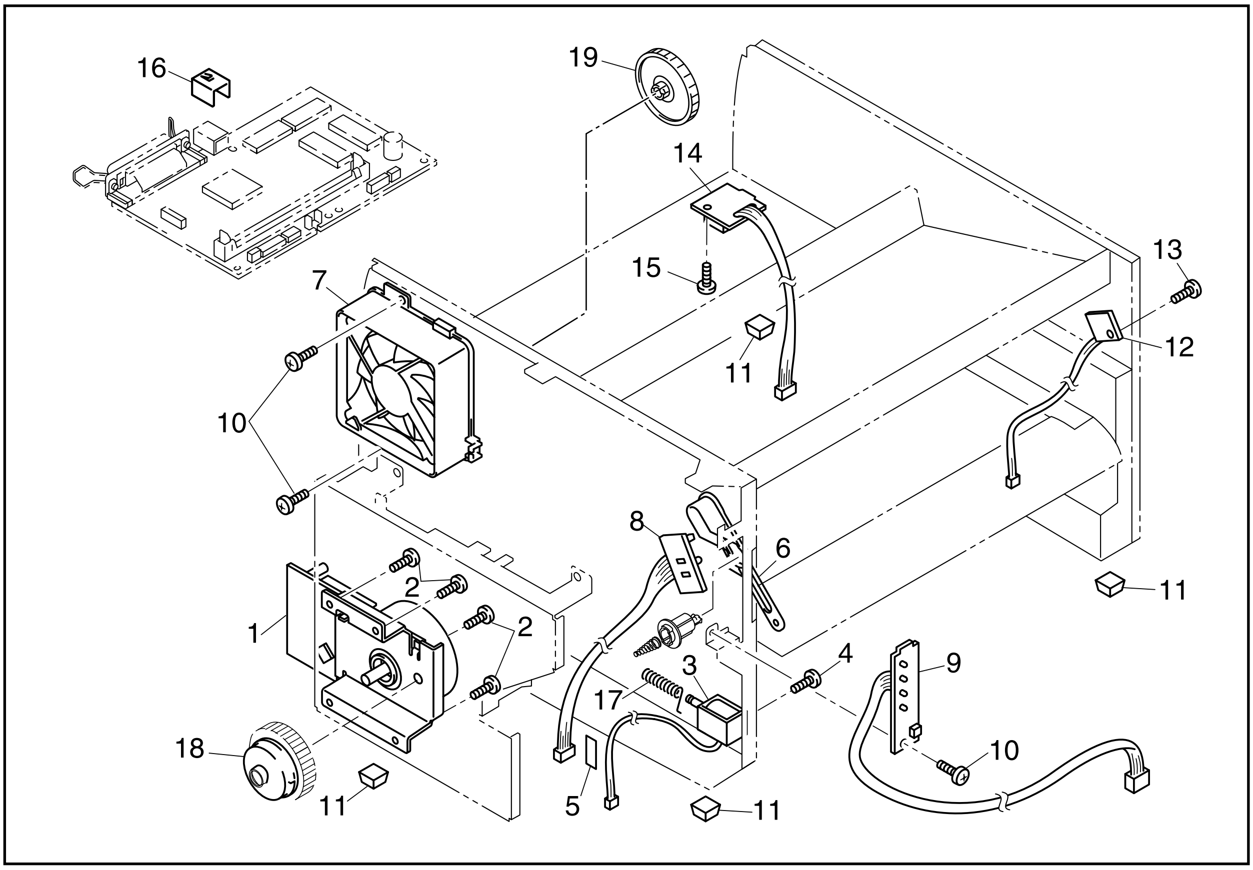
T/I NO. PR99165 / PR2000014 / PR2000073 / PR2000132 / PR2000152 / PR2001023

2. LASER UNIT

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	LJ4157001	1	LASER UNIT (SP)	(B512033)	
2	087321615	3	TAPTITE, CUP S M3X16		

MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-020

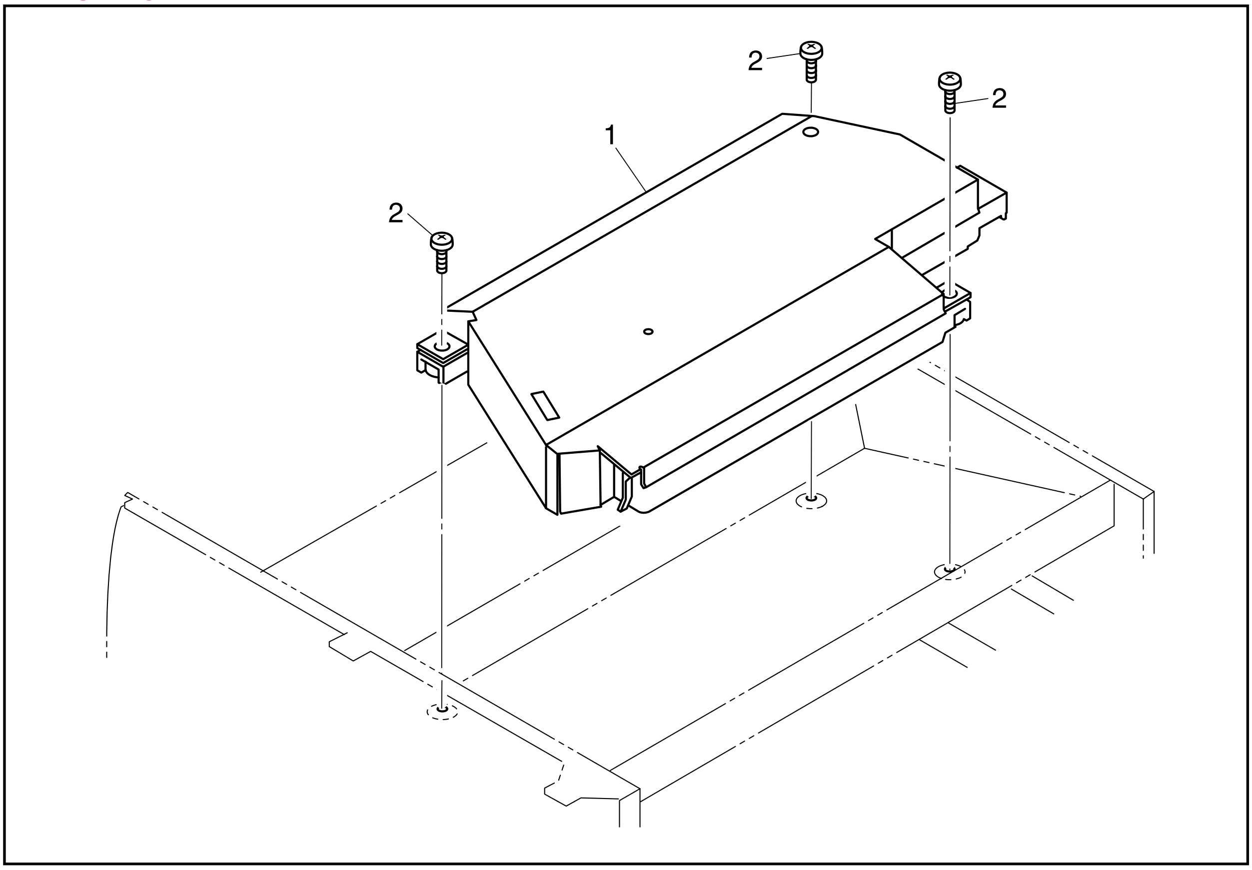
1. FRAME / DRIVE UNIT



MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-010

T/I NO. PR99165 / PR2000014 / PR2000073 / PR2000152 / PR2001023

2. LASER UNIT



MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-020

3. PAPER FEEDER

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UL9060001	1	PAPER FEED ROLLER ASSY	
2	UL9066001	1	PAPER PICK-UP ROLLER ASSY	
3	UL9071001	1	TR ELECTRODE HELICAL SPRING A	
3	LJ4499001	1	TR ELECTRODE HELICAL SPRING B	
4	LJ4843001	1	OUTER CHUTE 1 (SP)	
5	UL9070001	1	GEAR 21	
6	UL9059001	1	JOINT 5	
7	UL9062001	1	BEARING 5	
8	UL9069001	1	CONDUCTOR BEARING 5	

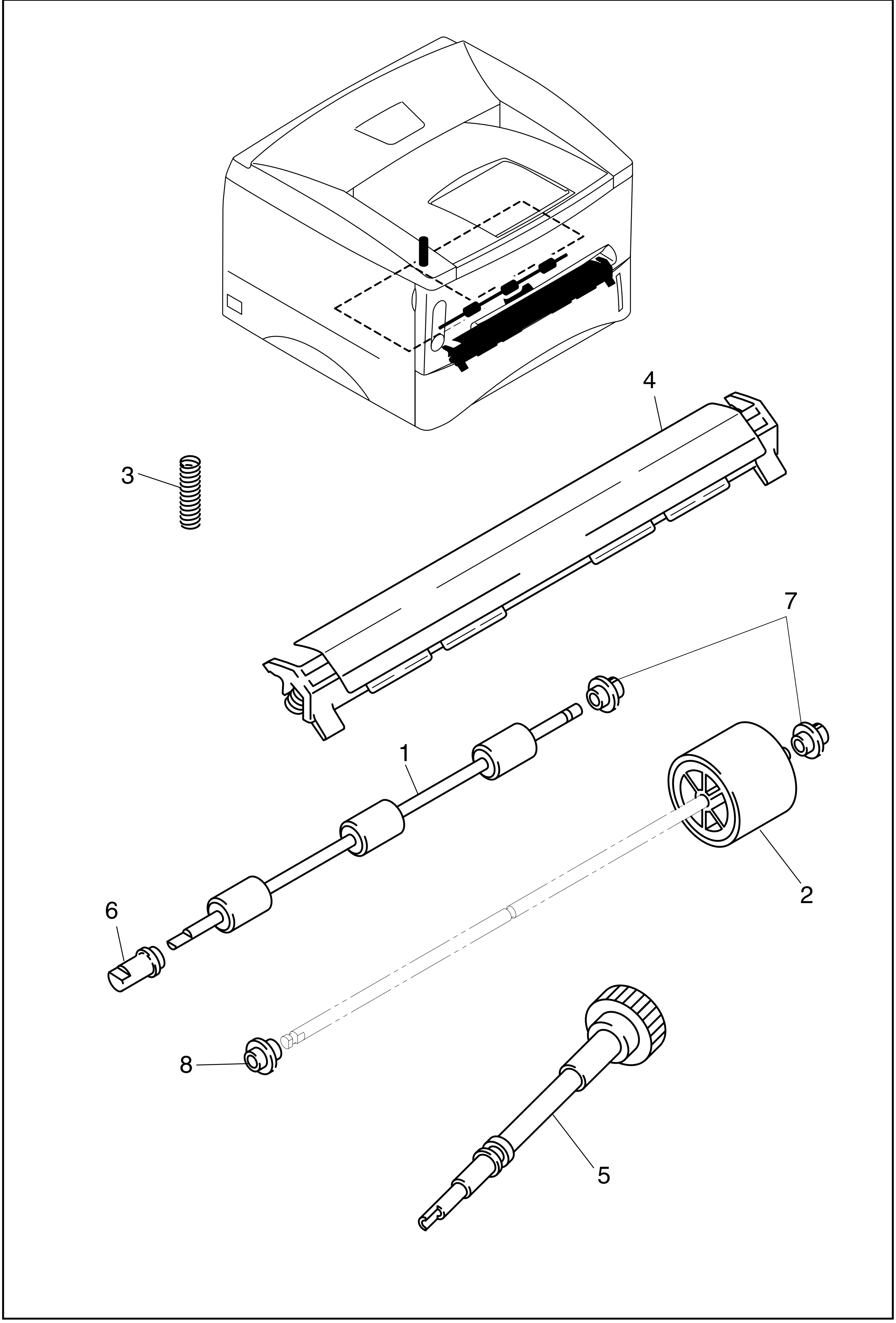
CAUTION:

1) The new version of the TR electrode helical spring, TR ELECTRODE HELICAL SPRING B (LJ4499001) should be used for ALL HL-1030/1270N printers and the HL-1240/1250 printers whose serial No. is the following number or later;

HL-1240: **J9J211817** - (EXCEPT J9J212235 - J9J217459, J9J219423 - J9J219997)
HL-1250: **J9J221758** -

2) The old version of the TR electrode helical spring, TR ELECTRODE HELICAL SPRING A (UL9071001) should be used for HL-1240/1250 whose serial No. is before the number above and the numbers in the range of J9J212235 - J9J217459 & J9J219423 - J9J219997.

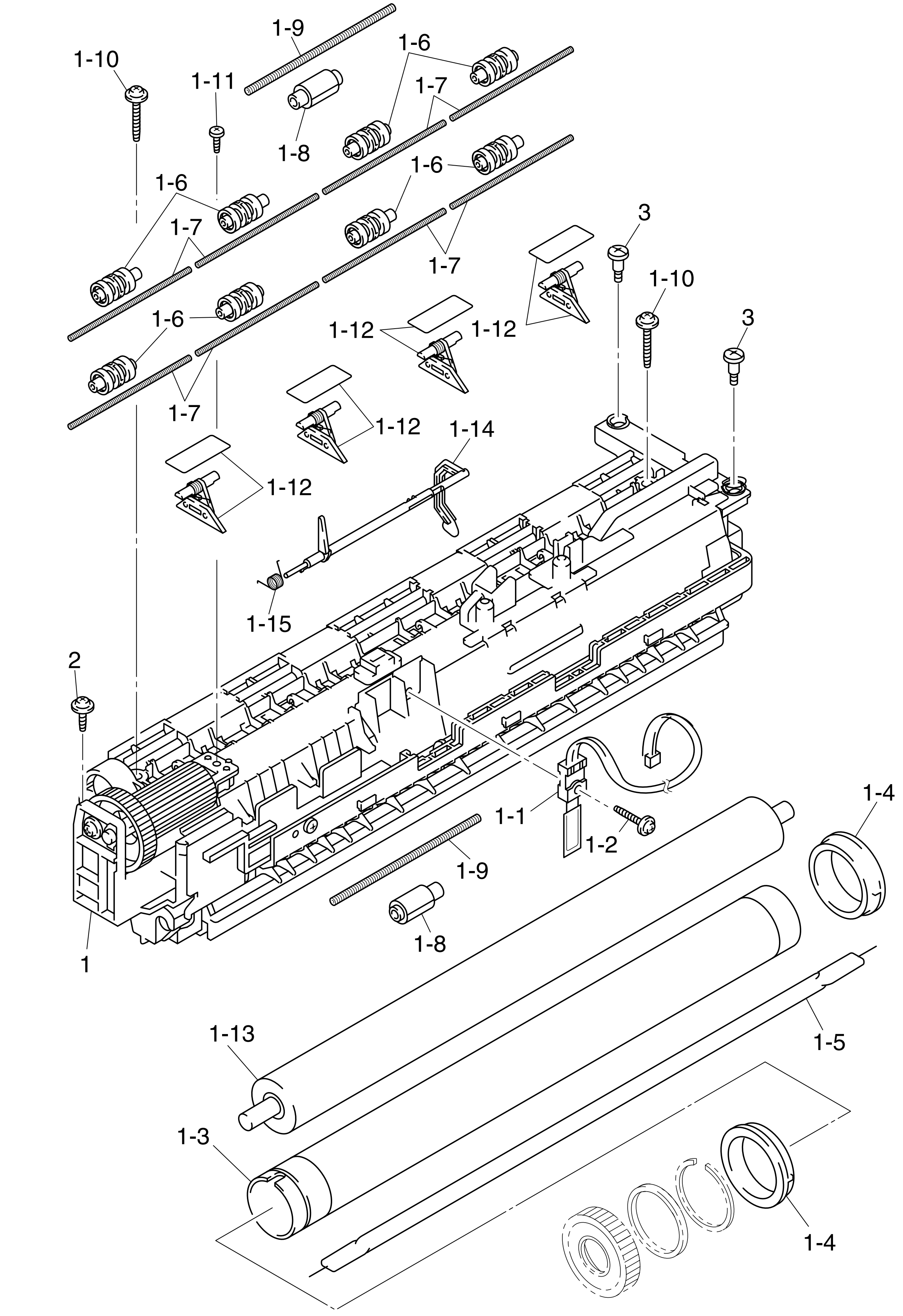
3) The old and new versions of the TR electrode helical spring are incompatible with each other.


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1
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6
8
5

4. FIXING UNIT

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4164001	1	FIXING UNIT, 115V (SP)	
1	LJ4168001	1	FIXING UNIT, 230V (SP)	
1	LJ4718001	1	FIXING UNIT, 230V LEG (SP)	
1-1	UL8902001	1	THERMISTOR ASSY	
1-2	087311215	1	TAPTITE, CUP B M3X12	
1-3	LJ4169001	1	HEAT ROLLER 25 (SP)	
1-3	LJ4719001	1	HEAT ROLLER 25 LEG (SP)	
1-4	UL8908001	2	HR BEARING 25	
1-5	LJ4160001	1	HALOGEN LAMP, 115V (SP)	
1-5	LJ4163001	1	HALOGEN LAMP, 230V (SP)	
1-6	UL8929001	8	EJECT PINCH ROLLER	
1-7	LJ4431001	8	PINCH SPRING	
1-8	LJ4407001	2	CLEANER ROLLER ASSY	
1-9	LJ4409001	2	CLEANER SPRING	
1-10	087312015	2	TAPTITE, CUP B M3X20	
1-11	Z07200001	1	TAPTITE, PAN B M3X10	
1-12	LJ4845001	4	PICK OFF FINGER (SP)	
1-13	LJ4853001	1	PRESSURE ROLLER 20 (SP)	
1-13	LJ4852001	1	PRESSURE ROLLER 20 LE (SP)	
1-14	UL8920001	1	PAPER EJECT ACTUATOR	
1-15	UL8921001	1	EJECT ACTUATOR SPRING	
1-16	UL8914001	1	IDLE GEAR 13	
2	087320815	1	TAPTITE, CUP S M3X8	
3	LJ4740001	2	SHOULDER SCREW	

4. FIXING UNIT



MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-045/047

T/I NO. PR2000029 / PR2000057

5-1. PAPER CASSETTE, LGL

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LE1162001	1	PAPER TRAY ASSY, LGL (SP)	
1-1	LJ4537001	1	PRESSURE PLATE ASSY, LGL	
1-2	UL9077001	2	PRESSURE PLATE SPRING	
1-3	UL9078001	1	SIDE GUIDE L	
1-4	UL9079001	1	SIDE GUIDE R	
1-5	U73515001	2	TAPTITE, CUP B M2.6X5	
1-6	UL9080001	2	SIDE GUIDE RACK	
1-7	UL9081001	1	SIDE GUIDE GEAR	
1-8	UL9082001	1	FRICTION SPRING	
1-9	087310815	1	TAPTITE, CUP B M3X8	
1-10	UL9083001	1	REAR PAPER GUIDE	
1-11	UL9084001	1	SEPARATION PAD HOLDER ASSY	
1-12	UL9090001	1	SEPARATION PAD SPRING	
1-13	UL9091001	1	PAPER INDICATOR	
1-14	UL9092001	1	LOCK LEVER	
1-15	LJ4534001	1	PRESSURE ROLLER HOLDER, LGL	
1-16	LJ4892001	1	PRESSURE ROLLER COLLAR 2 ASSY	
1-17	UL9095001	1	RELEASE LEVER EXTENSION SPRING	
1-18	LJ2061001	1	PAPER TRAY COVER	
1-19	UF8709001	1	TAPTITE, TORX PAN B M3X8	
1-20	LJ4272001	1	TRAY COVER FILM	
1-21	LJ4221001	1	SCRATCH SPONGE HOLDER ASSY	
1-22	LJ4200001	2	SCRATCH SPONGE SPRING	
1-23	LJ4865001	1	MYLAR LABEL 1240 TRAY	

MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-045

T/I NO. PR2000066 / PR2000127

5-2. PAPER CASSETTE, A4

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4181001	1	PAPER TRAY ASSY, A4 (SP)	
1-1	UL9074001	1	PRESSURE PLATE ASSY, A4	
1-2	UL9077001	2	PRESSURE PLATE SPRING	
1-3	UL9078001	1	SIDE GUIDE L	
1-4	UL9079001	1	SIDE GUIDE R	
1-5	U73515001	2	TAPTITE, CUP B M2.6X5	
1-6	UL9080001	2	SIDE GUIDE RACK	
1-7	UL9081001	1	SIDE GUIDE GEAR	
1-8	UL9082001	1	FRICTION SPRING	
1-9	087310815	1	TAPTITE, CUP B M3X8	
1-10	UL9083001	1	REAR PAPER GUIDE	
1-11	UL9084001	1	SEPARATION PAD HOLDER ASSY	
1-12	UL9090001	1	SEPARATION PAD SPRING	
1-13	UL9091001	1	PAPER INDICATOR	
1-14	UL9092001	1	LOCK LEVER	
1-15	LJ4196001	1	PRESSURE ROLLER HOLDER, A4	
1-16	LJ4892001	1	PRESSURE ROLLER COLLAR 2 ASSY	
1-17	UL9095001	1	RELEASE LEVER EXTENSION SPRING	
1-18	LJ2061001	1	PAPER TRAY COVER	
1-19	UF8709001	1	TAPTITE, TORX PAN B M3X8	
1-20	LJ4272001	1	TRAY COVER FILM	
1-21	LJ4221001	1	SCRATCH SPONGE HOLDER ASSY	
1-22	LJ4200001	2	SCRATCH SPONGE SPRING	

MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-047

T/I NO. PR2000127

5-3. PAPER CASSETTE, PB

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4639001	1	PAPER TRAY ASSY 3 (SP)	
1-1	UL9074001	1	PRESSURE PLATE ASSY, A4	
1-2	LJ4621001	2	PRESSURE PLATE SPRING 340	
1-3	UL9078001	1	SIDE GUIDE L	
1-4	UL9079001	1	SIDE GUIDE R	
1-5	U73515001	2	TAPTITE, CUP B M2.6X5	
1-6	UL9080001	2	SIDE GUIDE RACK	
1-7	UL9081001	1	SIDE GUIDE GEAR	
1-8	UL9082001	1	FRICTION SPRING	
1-9	087310815	1	TAPTITE, CUP B M3X8	
1-10	UL9083001	1	REAR PAPER GUIDE	
1-11	UL9084001	1	SEPARATION PAD HOLDER ASSY	
1-12	LJ4705001	1	SEPARATION PAD SPRING 300	
1-13	UL9091001	1	PAPER INDICATOR	
1-14	UL9092001	1	LOCK LEVER	
1-15	LJ4196001	1	PRESSURE ROLLER HOLDER	
1-16	LJ4893001	1	PRESSURE ROLLER COLLAR 2 ASSY	
1-17	UL9095001	1	RELEASE LEVER EXTENSION SPRING	
1-18	LJ2061001	1	PAPER TRAY COVER	
1-19	UF8709001	1	TAPTITE, TORX PAN B M3X8	
1-20	LJ4272001	1	TRAY COVER FILM	
1-21	LJ4221001	1	SCRATCH SPONGE HOLDER ASSY	
1-22	LJ4200001	2	SCRATCH SPONGE SPRING	

MODEL HL-1240 84U-Z01-049

T/I NO. PR99179 / PR2000127

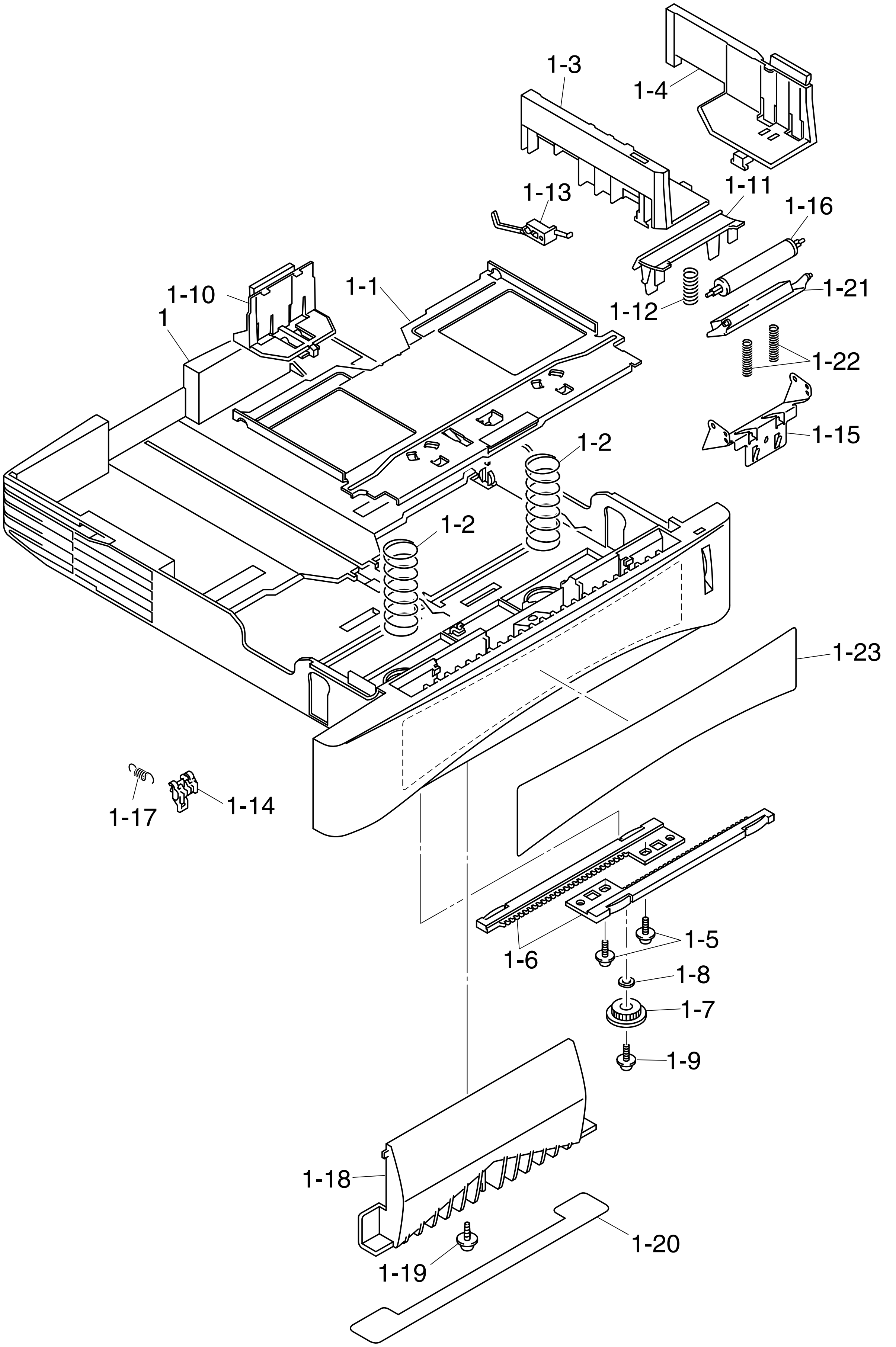
5-4. PAPER CASSETTE, LEG

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4684001	1	PAPER TRAY ASSY, LEG (SP)	
1-1	UL9074001	1	PRESSURE PLATE ASSY, A4	
1-2	UL9077001	2	PRESSURE PLATE SPRING	
1-3	UL9078001	1	SIDE GUIDE L	
1-4	UL9079001	1	SIDE GUIDE R	
1-5	U73515001	2	TAPTITE, CUP B M2.6X5	
1-6	UL9080001	2	SIDE GUIDE RACK	
1-7	UL9081001	1	SIDE GUIDE GEAR	
1-8	UL9082001	1	FRICTION SPRING	
1-9	087310815	1	TAPTITE, CUP B M3X8	
1-10	UL9083001	1	REAR PAPER GUIDE	
1-11	UL9084001	1	SEPARATION PAD HOLDER ASSY	
1-12	LJ4622001	1	SEPARATION PAD SPRING 250	
1-13	UL9091001	1	PAPER INDICATOR	
1-14	UL9092001	1	LOCK LEVER	
1-15	LJ4196001	1	PRESSURE ROLLER HOLDER, A4	
1-16	LJ4892001	1	PRESSURE ROLLER COLLAR 2 ASSY	
1-17	UL9095001	1	RELEASE LEVER EXTENSION SPRING	
1-18	LJ2061001	1	PAPER TRAY COVER	
1-19	UF8709001	1	TAPTITE, TORX PAN B M3X8	
1-20	LJ4272001	1	TRAY COVER FILM	
1-21	LJ4221001	1	SCRATCH SPONGE HOLDER ASSY	
1-22	LJ4200001	2	SCRATCH SPONGE SPRING	

MODEL HL-1240/1250/1270N 84U-Z06/Z07/08-043

T/I NO. PR99179 / PR2000127

5. PAPER CASSETTE



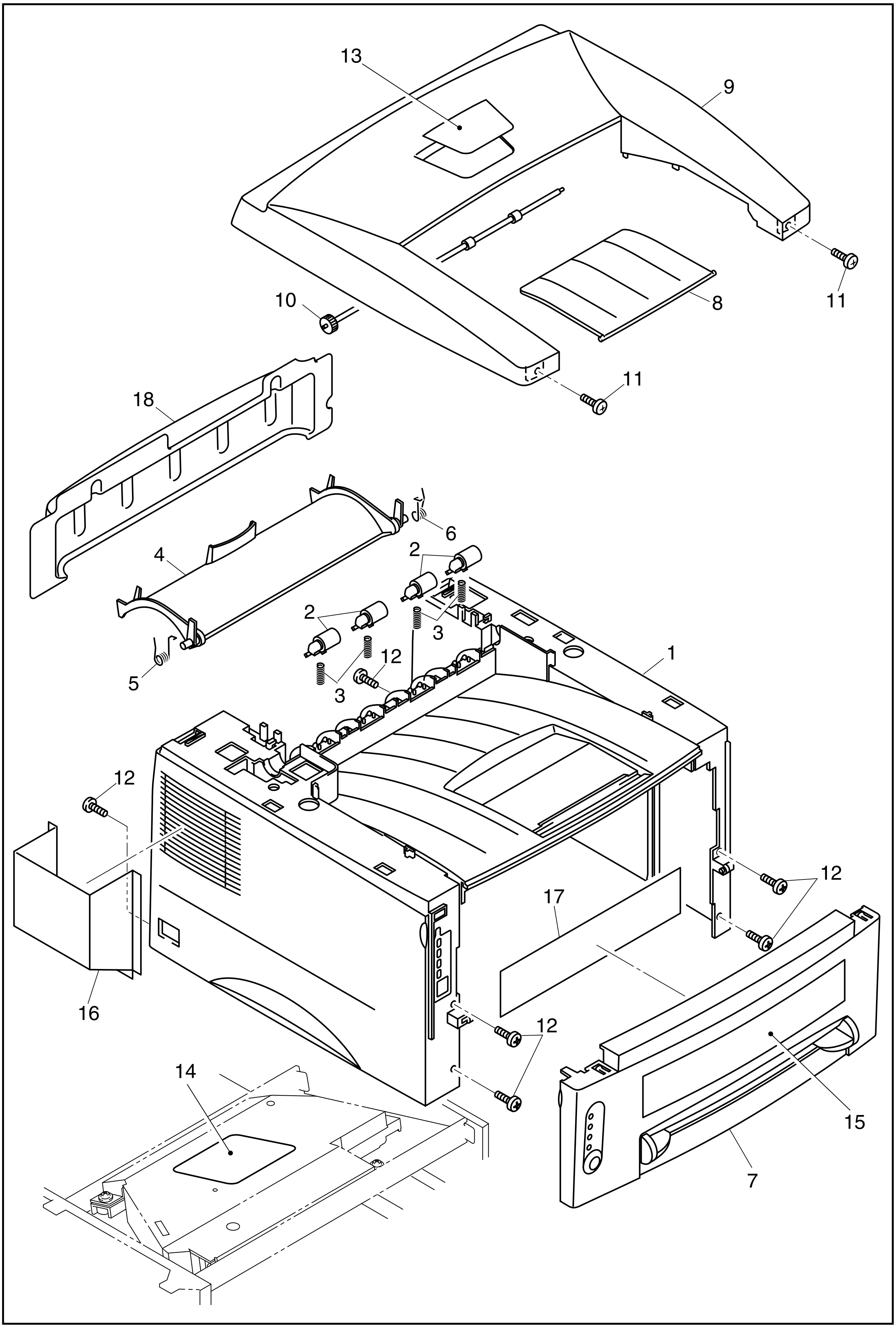
MODEL HL-1030/1240/1250/1270N 84U-Z04/Z01/Z02/Z03-045/047

T/I NO. PR2000066 / PR2000127

6. COVERS

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4122001	1	MAIN COVER ASSY	
2	UL9122001	4	PINCH ROLLER ASSY	
3	UL9125001	4	PINCH ROLLER SPRING	
4	UL9126001	1	REAR COVER	
5	UL9127001	1	REAR COVER SPRING L	
6	UL9128001	1	REAR COVER SPRING R	
7	UL9129001	1	FRONT COVER ASSY	
7	LJ4526001	1	FRONT COVER ASSY LE	
8	UL9140001	1	TRAY EXTENSION FLAP	
9	UL9088001	1	TOP COVER	
10	UL9142001	1	SECOND EJECT ROLLER ASSY	
11	087321015	2	TAPTITE, CUP S M3X10	
12	085320816	6	TAPTITE, BIND S M3X8	
13	LJ8166001	1	MODEL PLATE 1030	
13	UL9143001	1	MODEL PLATE 1240	
13	UL9315001	1	MODEL PLATE 1250	
13	LJ4794001	1	MODEL PLATE 1270	
13	LJ4135001	1	MODEL PLATE 1270N	
13	LJ4452001	1	MODEL PLATE J624	
13	LJ4460001	1	MODEL PLATE 2312P	
13	LJ4496001	1	MODEL PLATE 2412P	
13	LJ4724001	1	MODEL PLATE 8212N	
13	LJ4772001	1	MODEL PLATE HL-1240 WIP	
13	LJ4846001	1	MODEL PLATE HL-1250 WIP	
13	LJ4848001	1	MODEL PLATE HL-1270N WIP	
14	UL6740001	1	LASER CAUTION LABEL, EUR	
14	UL7931001	1	LASER LABEL LEGEND	
15	LJ8167001	1	MYLAR LABEL 1030, CAN	
15	LJ8172001	1	MYLAR LABEL 1030, EUR	
15	UL9146001	1	MYLAR LABEL 1240, US	
15	UL9249001	1	MYLAR LABEL 1240, CAN	
15	UL9250001	1	MYLAR LABEL 1240, EUR	
15	UL9316001	1	MYLAR LABEL 1250, US	
15	LJ4078001	1	MYLAR LABEL 1250, CAN	
15	UL9317001	1	MYLAR LABEL 1250, EUR	
15	LJ4136001	1	MYLAR LABEL 1270N, US	
15	LJ4232001	1	MYLAR LABEL 1270N, CAN	
15	LJ4137001	1	MYLAR LABEL 1270N, EUR	
16	LJ4905001	1	FAN GUARD	
17	UL9145001	1	PROCESS UNIT OP LABEL	
18	LJ4855001	1	TRAY REAR COVER ASSY	

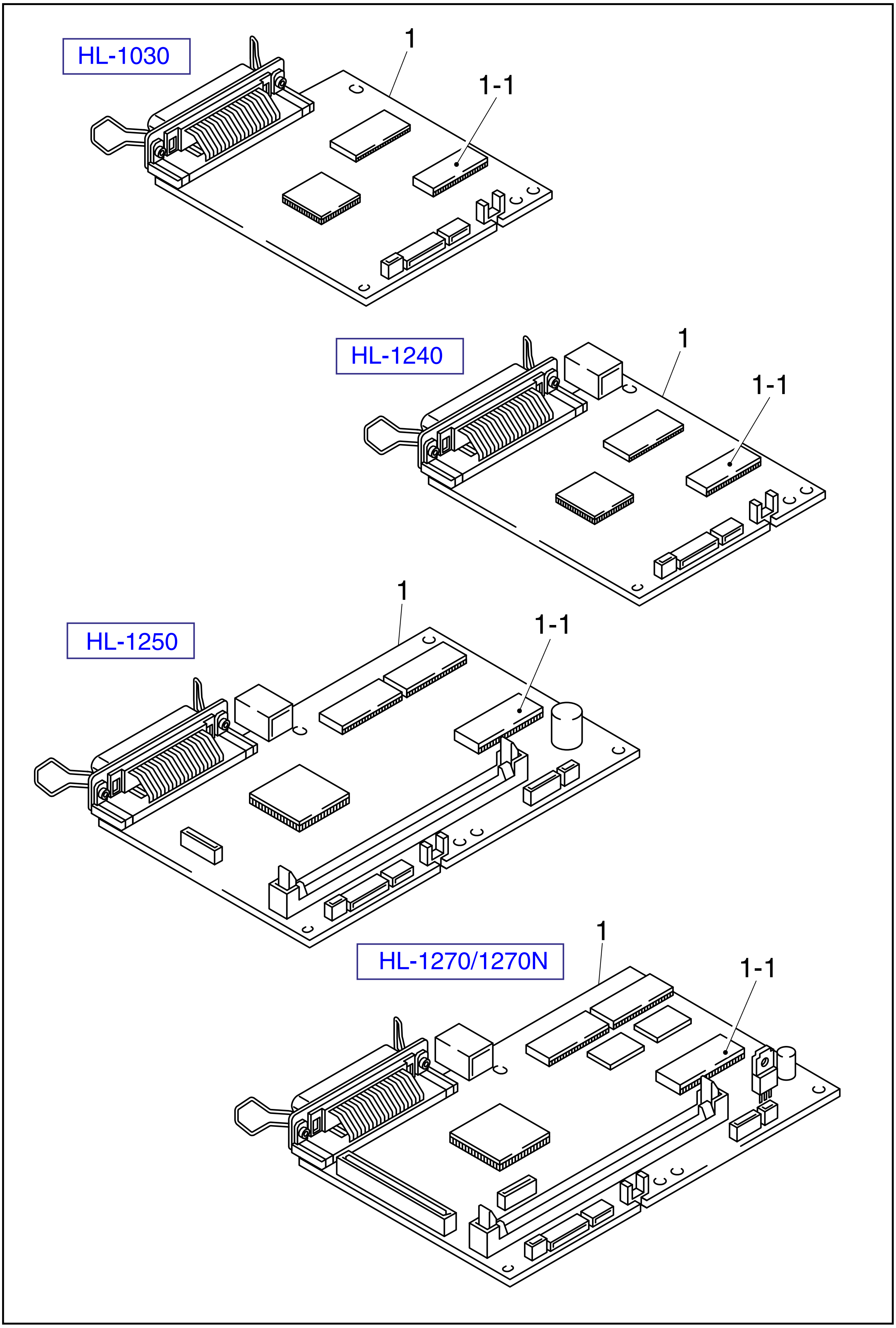
6. COVERS



7. MAIN PCB

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	LJ8239001	1	MAIN PCB ASSY, HL-1030 (SP)	B512040-450D	
1	LJ8066001	1	MAIN PCB ASSY, HL-1240 (SP)	B512040-410F	
1	LJ8067001	1	MAIN PCB ASSY, HL-1240 HEB (SP)	B512040-411B	
1	LJ8251001	1	MAIN PCB ASSY, HL-1240 PB (SP)	B512040-445F	
1	LJ8160001	1	MAIN PCB ASSY, 2312P LEG (SP)	B512040-413F	
1	LJ8318001	1	MAIN PCB ASSY, HL-1250-2 (SP)	B512115-1-160A	
1	LJ8305001	1	MAIN PCB ASSY, HL-1250-2 EU (SP)	B512115-1-177A	
1	LJ8306001	1	MAIN PCB ASSY, HL-1250-2 DEN (SP)	B512115-1-178A	
1	LJ8568001	1	MAIN PCB ASSY, HL-1250-2 CA (SP)	B512115-1-179A	
1	LJ8326001	1	MAIN PCB ASSY, HL-1250-2 LEG (SP)	B512115-1-163A	
1	LJ8328001	1	MAIN PCB ASSY, HL-1270N-2 (SP)	B512115-1-180B	
1	LJ8307001	1	MAIN PCB ASSY, HL-1270N-2 EU (SP)	B512115-1-197B	
1	LJ8308001	1	MAIN PCB ASSY, HL-1270N-2 DEN (SP)	B512115-1-198B	
1	LJ8329001	1	MAIN PCB ASSY, HL-1270N-2 LEG (SP)	B512115-1-163A	
1-1	LJ8295001	1	MASK ROM, HL-1030/1240		
1-1	LJ8047001	1	MASK ROM, HL-1240 HEB		
1-1	LJ8304001	1	MASK ROM, HL-1250		
1-1	LJ8310001	1	MASK ROM, HL-1270N		

7.MAIN PCB



8. ENGINE PCB

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	LJ4178001	1	ENGINE PCB ASSY A, 1240 (SP)	B512059-101D	
1	LJ8157001	1	ENGINE PCB ASSY B, 1030/1240 (SP)	B512075-121D	
1	LJ4222001	1	ENGINE PCB ASSY A, 1250 (SP)	B512059-102D	
1	LJ8158001	1	ENGINE PCB ASSY B, 1250/1270 (SP)	B512059-122C	

CAUTION:

1) The new versions of the engine PCB, ENGINE PCB ASSY B, 1240/1030 (LJ8157001) & ENGINE PCB ASSY B, 1250/1270 (LJ8158001) should be used for ALL HL-1030/1270N printers and the HL-1240/1250 printers whose serial No. is the following number or later;

HL-1240: **J9J211817** - (EXCEPT J9J212235 - J9J217459, J9J219423 - J9J219997)
HL-1250: **J9J221758** -

2) The old versions of the engine PCB, ENGINE PCB ASSY A, 1240 (LJ4178001) & ENGINE PCB ASSY A, 1250 (LJ4222001) should be used for HL-1240/1250 whose serial No. is before the number above and the numbers in the range of J9J212235 - J9J217459 & J9J219423 - J9J219997.

3) The old and new versions of the engine PCB are incompatible with each other.

MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-151

T/I NO. PR99165 / PR99197 / PR99202 / PR99213 / PR2000016 / PR2000121

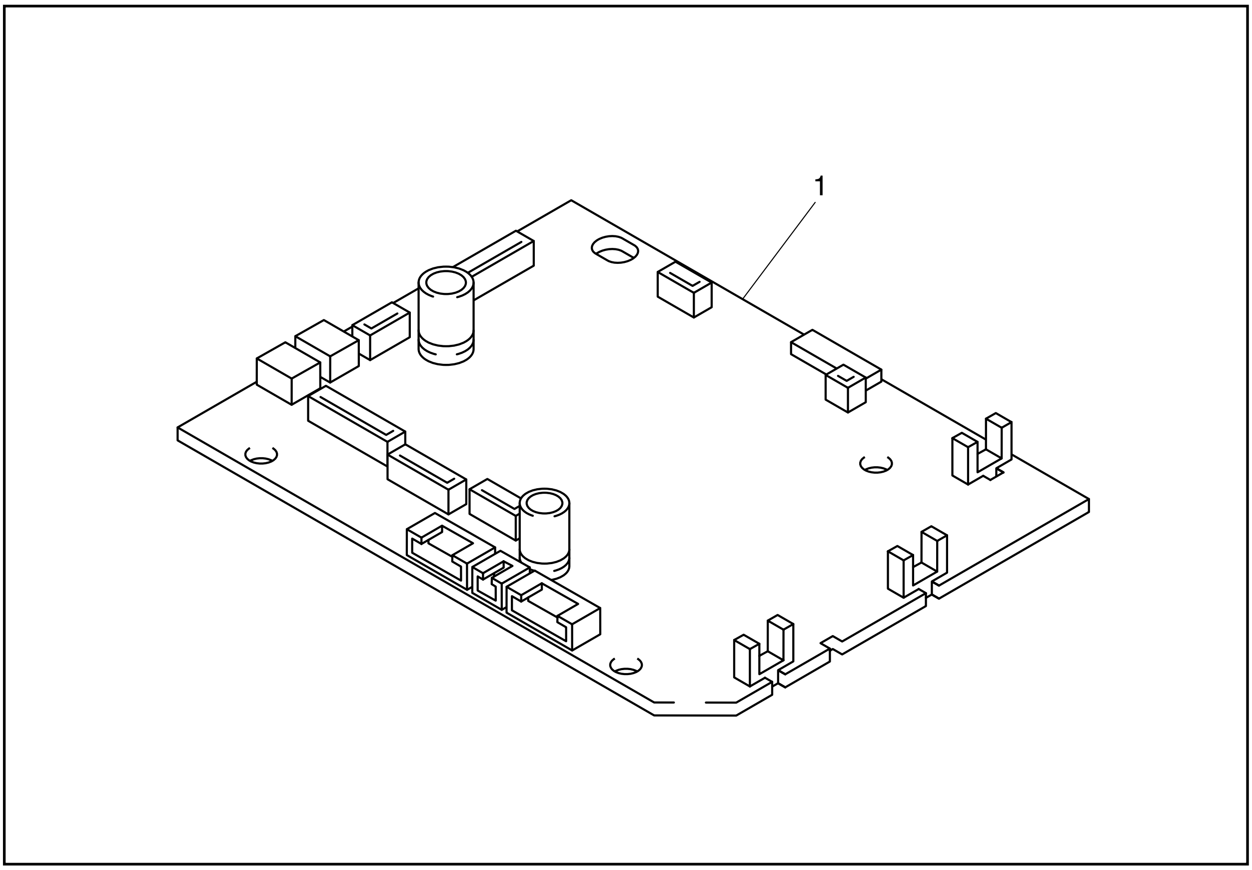
9. LOW-VOLTAGE POWER SUPPLY PCB

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	LE1539001	1	LOW-VOLTAGE PS ASSY, 115V (SP)		
1	LJ4175001	1	LOW-VOLTAGE PS ASSY, 230V (SP)		
2	UK4426001	1	INLET UNIT, 115V		
2	UK4430001	1	INLET UNIT, 230V		
3	085320816	1	TAPTITE, BIND S M3X8		
4	087320616	1	TAPTITE, CUP S M3X6		
5	LJ4756001	1	AC INLET FILM		
6	LJ8330001	1	PROTECTION TUBE		

MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-200/201

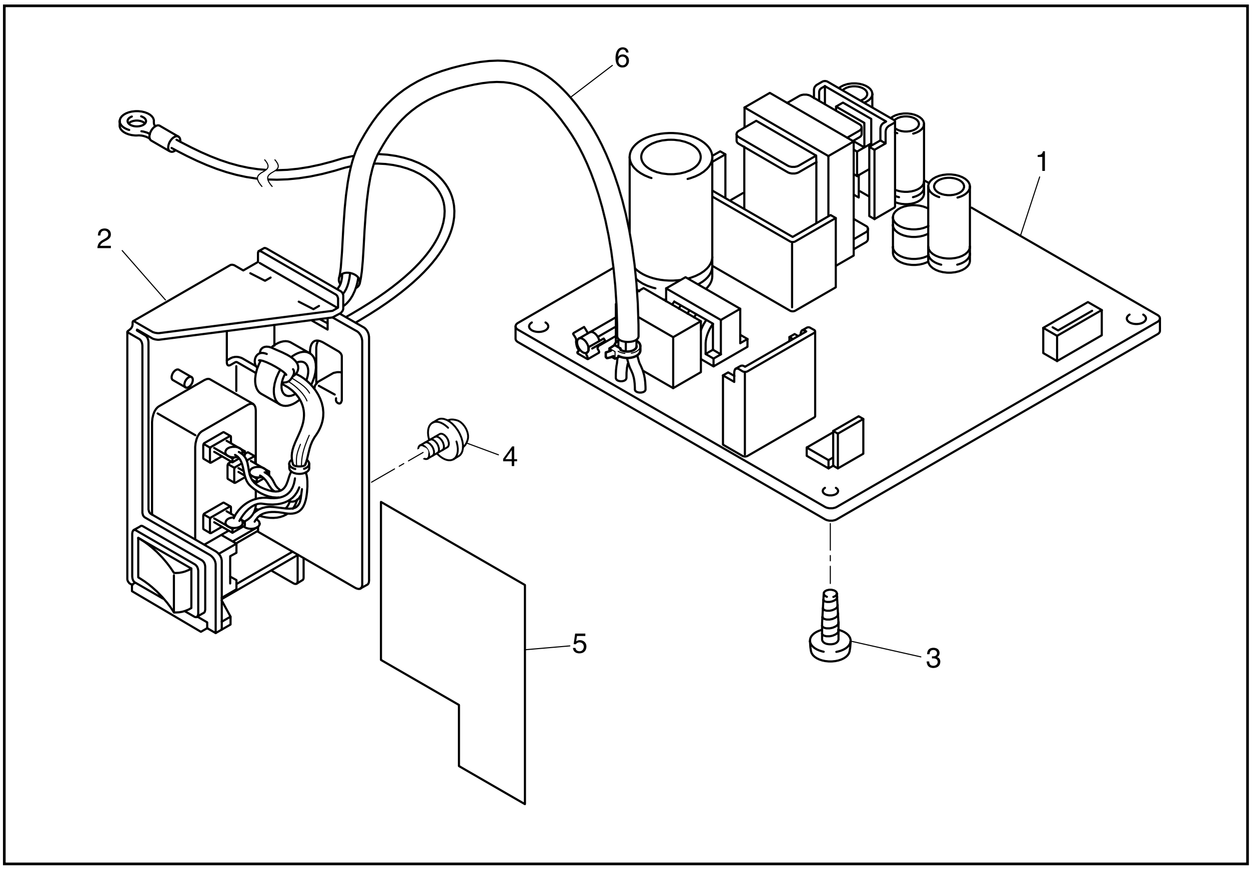
T/I NO. PR99188 / PR99189 / PR2000113

8. ENGINE PCB



MODEL HL-1030/1240/1250/1270N 84U-Z04/Z01/Z02/Z03-151

9. LOW-VOLTAGE POWER SUPPLY PCB



MODEL HL-1030/1240/1250/1270N 84U-Z04/Z01/Z02/Z03-200/201

T/I NO. PR99188 / PR2000113

10. HIGH-VOLTAGE POWER SUPPLY PCB

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ4176001	1	HIGH-VOLTAGE PS ASSY A (SP)	
1	LJ8156001	1	HIGH-VOLTAGE PS ASSY B (SP)	
2	085411215	4	SCREW BIND B TITE M4X12	

CAUTION:

1) The new version of the high-voltage power supply PCB, HIGH-VOLTAGE PS ASSY B (LJ8156001) should be used for ALL HL-1030/1270N printers and the HL-1240/1250 printers whose serial No. is the following number or later;

HL-1240: **J9J211817** - (EXCEPT J9J212235 - J9J217459, J9J219423 - J9J219997)
HL-1250: **J9J221758** -

2) The old version of the high-voltage power supply PCB, HIGH-VOLTAGE PS ASSY A (LJ4176001) should be used for HL-1240/1250 whose serial No. is before the number above and the numbers in the range of J9J212235 - J9J217459 & J9J219423 - J9J219997.

3) The old and new versions of the high-voltage power supply PCB are incompatible each other.

MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-220

T/I NO. PR99153, PR99165

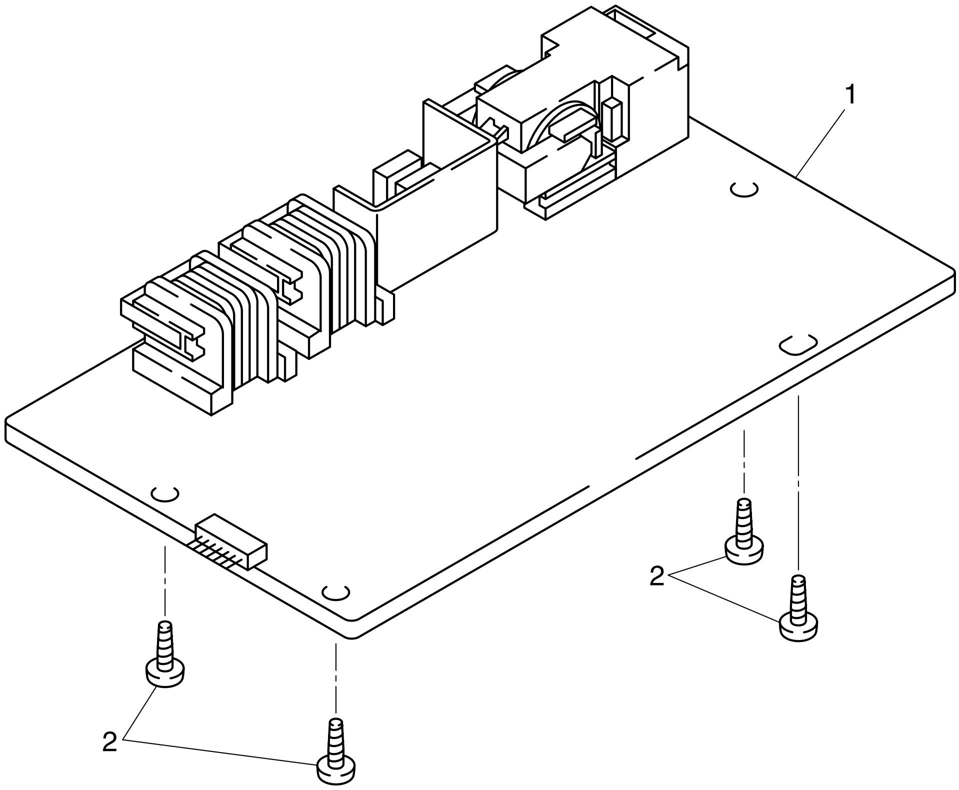
11. AC CORDS

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1A	UH1051001	1	AC CORD, UL/CSA	
1B	UK4503001	1	AC CORD ASSY, SAA	
1C	UK4502001	1	AC CORD ASSY, SEV	
1D	UK4099001	1	AC CORD, CHLI	
1E	UH1054001	1	AC CORD, BS	
1F	U34322001	1	AC CORD #6, ISRAEL	
1G	U34320001	1	AC CORD #4, BS	
1H	UK4094001	1	AC CORD, DEMKO	
1I	UK4501001	1	AC CORD ASSY, VDE	
1J	UK3610001	1	AC CORD ASSY, CHN96	
1K	LJ8288001	1	AC CORD ASSY, IND	

MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-230

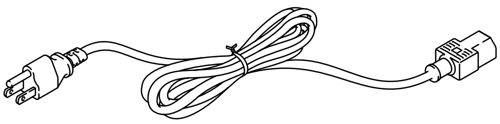
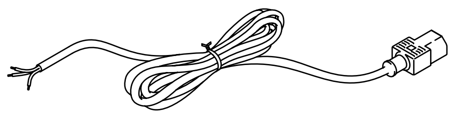
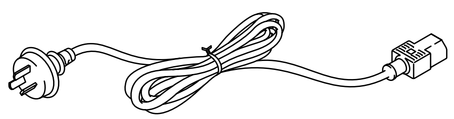
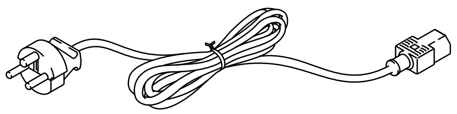
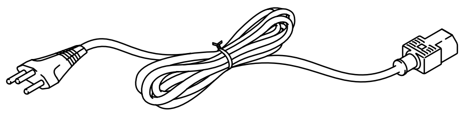
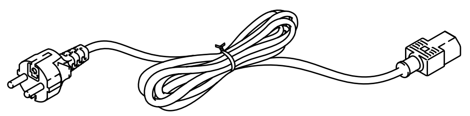
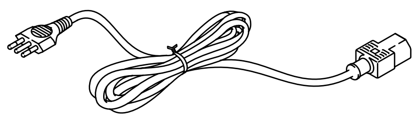
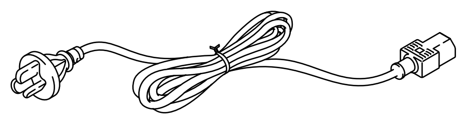
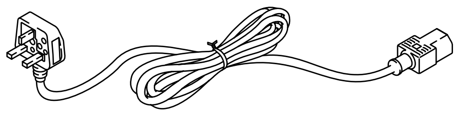
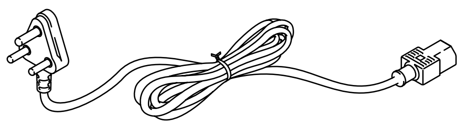
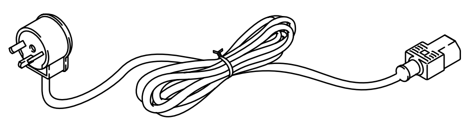
T/I NO. PR99179, PR2000055

10. HIGH VOLTAGE POWER SUPPLY PCB



MODEL HL-1030/1240/1250/1270N 84U-Z04/Z01/Z02/Z03-220

11. AC CORD

1A		1G	
1B		1H	
1C		1I	
1D		1J	
1E		1K	
1F			

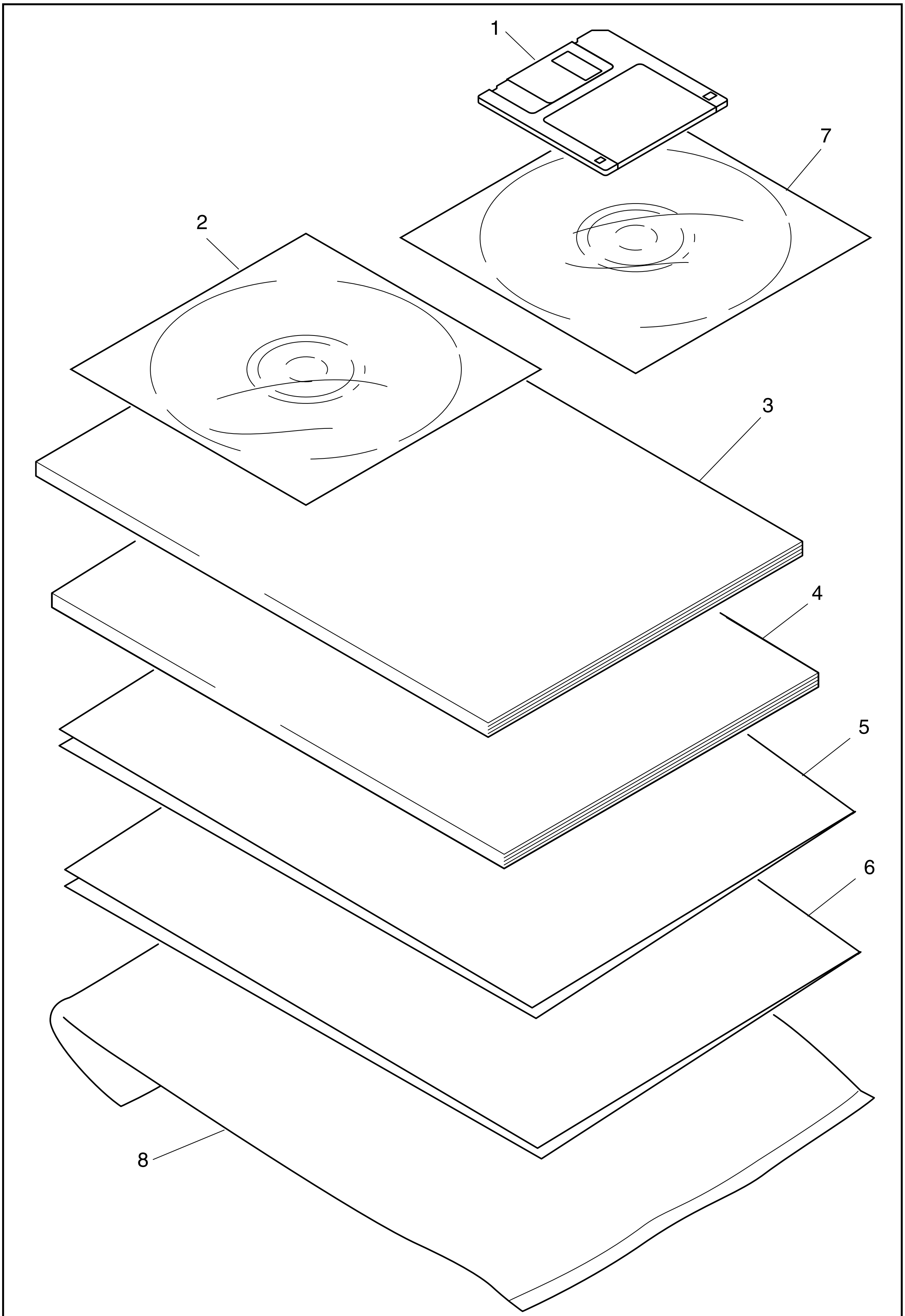
MODEL HL-1030/1240/1250/1270N 84U-Z04/Z01/Z02/Z03-23 0

T/I NO. PR99179 / PR2000055

12. ACCESSORIES

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LJ8161001	1	PR DRIVER DISK ASSY 1, HL-1030	
1	LJ8162001	1	PR DRIVER DISK ASSY 2, HL-1030	
1	UK4387001	1	PR DRIVER DISK ASSY 1, HL-1240	
1	UK4392001	1	PR DRIVER DISK ASSY 2, HL-1240	
1	UK4390001	1	PR DRIVER DISK ASSY 1, HL-1250	
1	UK4394001	1	PR DRIVER DISK ASSY 2, HL-1250	
1	LJ8035001	1	PR DRIVER DISK ASSY 1, HL-1270N	
1	LJ8036001	1	PR DRIVER DISK ASSY 2, HL-1270N	
1	LJ8090001	1	PR DRIVER DISK ASSY LEG 2312P	
1	LJ8244001	1	PR DRIVER DISK ASSY LEG 2412P	
1	LJ4728001	1	PR DRIVER DISK ASSY LEG 8212N	
1	LJ8285001	1	PR DRIVER DISK ASSY, WIP HL-1240	
1	LJ8289001	1	PR DRIVER DISK ASSY, WIP HL-1250	
1	LJ8291001	1	PR DRIVER DISK ASSY, WIP HL-1270N	
2	LJ8141001	1	CD ASSY	
2	LJ8040001	1	CD ASSY, PB	
2	LJ4727001	1	CD ASSY, LEG	
2	L8261001	1	CD ASSY, KOR	
2	LJ8287001	1	CD ASSY, WIP	
3	LJ4746001	1	SETUP GUIDE, US	
3	LJ4748001	1	SETUP GUIDE, FRA	
3	LJ4747001	1	SETUP GUIDE, GER	
3	LJ4750001	1	SETUP GUIDE, NL	
3	LJ4749001	1	SETUP GUIDE, NOR	
3	LJ4754001	1	SETUP GUIDE, SWE	
3	LJ4751001	1	SETUP GUIDE, DEN	
3	LJ4752001	1	SETUP GUIDE, SPA	
3	LJ4753001	1	SETUP GUIDE, ITA	
3	LJ4650001	1	SETUP GUIDE, PB	
4	LJ4585001	1	NETWORK SETUP GUIDE, US (HL-1270N)	
4	LJ4586001	1	NETWORK SETUP GUIDE, FRA (HL-1270N)	
4	LJ4587001	1	NETWORK SETUP GUIDE, GER (HL-1270N)	
4	LJ4588001	1	NETWORK SETUP GUIDE, NL (HL-1270N)	
4	LJ4590001	1	NETWORK SETUP GUIDE, SPA (HL-1270N)	
4	LJ4589001	1	NETWORK SETUP GUIDE, ITA (HL-1270N)	
5	LJ4802001	1	WIN2000 QUICK SETUP GUIDE, US	
5	LJ4803001	1	WIN2000 QUICK SETUP GUIDE, FRA	
5	LJ4804001	1	WIN2000 QUICK SETUP GUIDE, GER	
5	LJ4805001	1	WIN2000 QUICK SETUP GUIDE, NL	
5	LJ4806001	1	WIN2000 QUICK SETUP GUIDE, NOR	
5	LJ4807001	1	WIN2000 QUICK SETUP GUIDE, SWE	
5	LJ4808001	1	WIN2000 QUICK SETUP GUIDE, ITA	
5	LJ4809001	1	WIN2000 QUICK SETUP GUIDE, DEN	
5	LJ4810001	1	WIN2000 QUICK SETUP GUIDE, SPA	
6	LJ4842001	1	QUICK SETUP GUIDE, WIP	
7	LJ4829001	1	USER'S MANUAL 8212N (LEG HL1270N)	
8	UE2014001	1	BAG, 215X350H	

12. ACCESSORIES



MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-920

T/I NO. PR99165 / PR2000022 / PR2000024 / PR2000055

13. PACKING MATERIALS

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	LL0125001	1	CARTON, HL-1030 EU	
1	LL0124001	1	CARTON, HL-1030 CAN	
1	UE0818001	1	CARTON, HL-1240 US	
1	UE0822001	1	CARTON, HL-1240 CAN	
1	UE0820001	1	CARTON, HL-1240 EU	
1	LL0014001	1	CARTON, HL-1250 US	
1	LL0015001	1	CARTON, HL-1250 CAN	
1	LL0016001	1	CARTON, HL-1250 EU	
1	LL0194001	1	CARTON, HL-1270 A4	
1	LJ4186001	1	CARTON, HL-1270N US	
1	LJ4538001	1	CARTON, HL-1270N CAN	
1	LJ4188001	1	CARTON, HL-1270N EU	
1	LL0046001	1	CARTON, OEM	
1	LL0045001	1	CARTON, LEG 2312P	
1	LL0047001	1	CARTON, LEG 2412P	
1	LL0151001	1	CARTON, LEG 8212N	
2	UE2280001	1	STYROFORM PAD ASSY, LGL	
2	LJ4038001	1	STYROFORM PAD ASSY, A4	
3	UE2283001	1	ACCESSORY CARTON	
4	UE2126001	1	BAG, 700X800H	

MODEL HL-1030/1240/1250/1270/1270N 84U-Z04/Z01/Z02/Z05/Z03-930

T/I NO. PR99165, PR99179, PR99206, PR99211, PR2000005

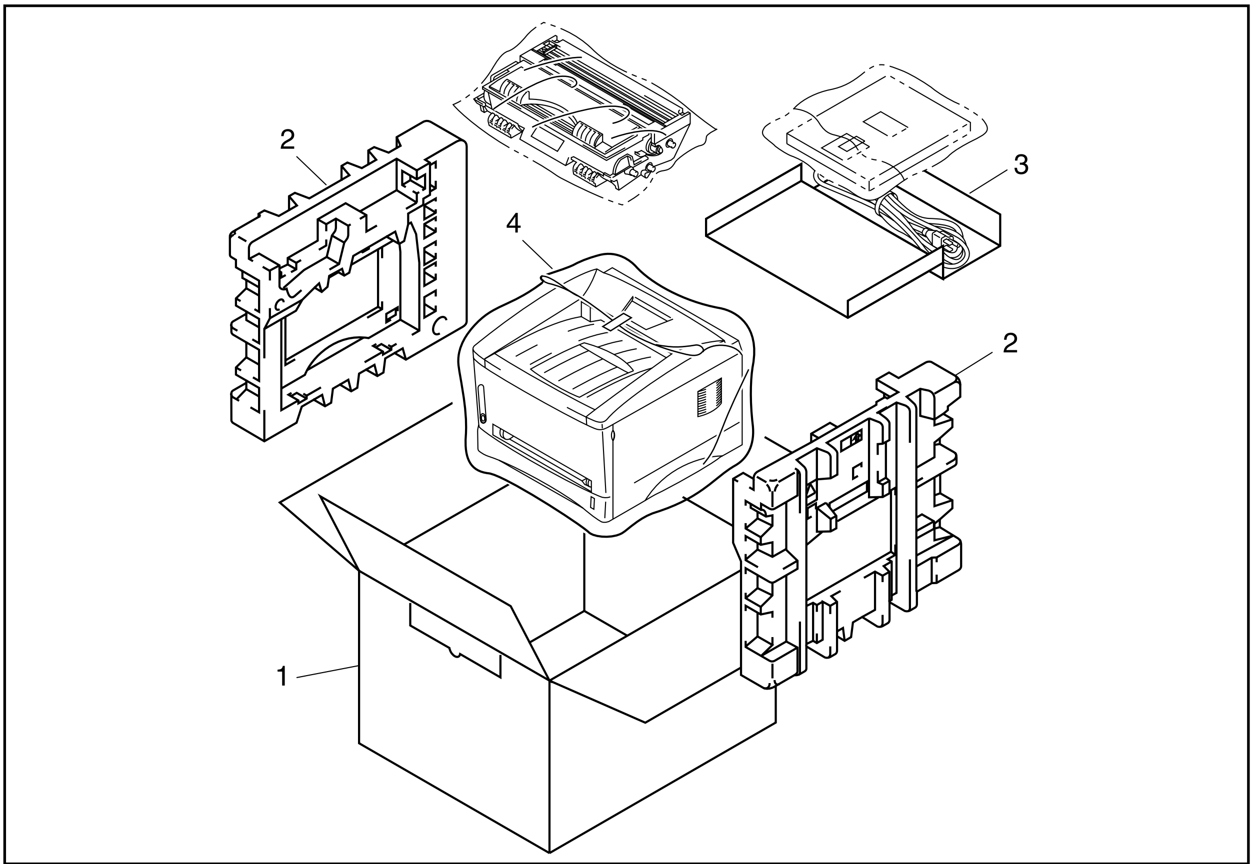
14. NETWORK BOARD

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	LJ8083001	1	BRNET PCB UNIT (SP)	B512058-100A	
1-1	087320616	2	TAPTITE, CUP S M3X6		

MODEL HL-1270N 84U-Z03-150

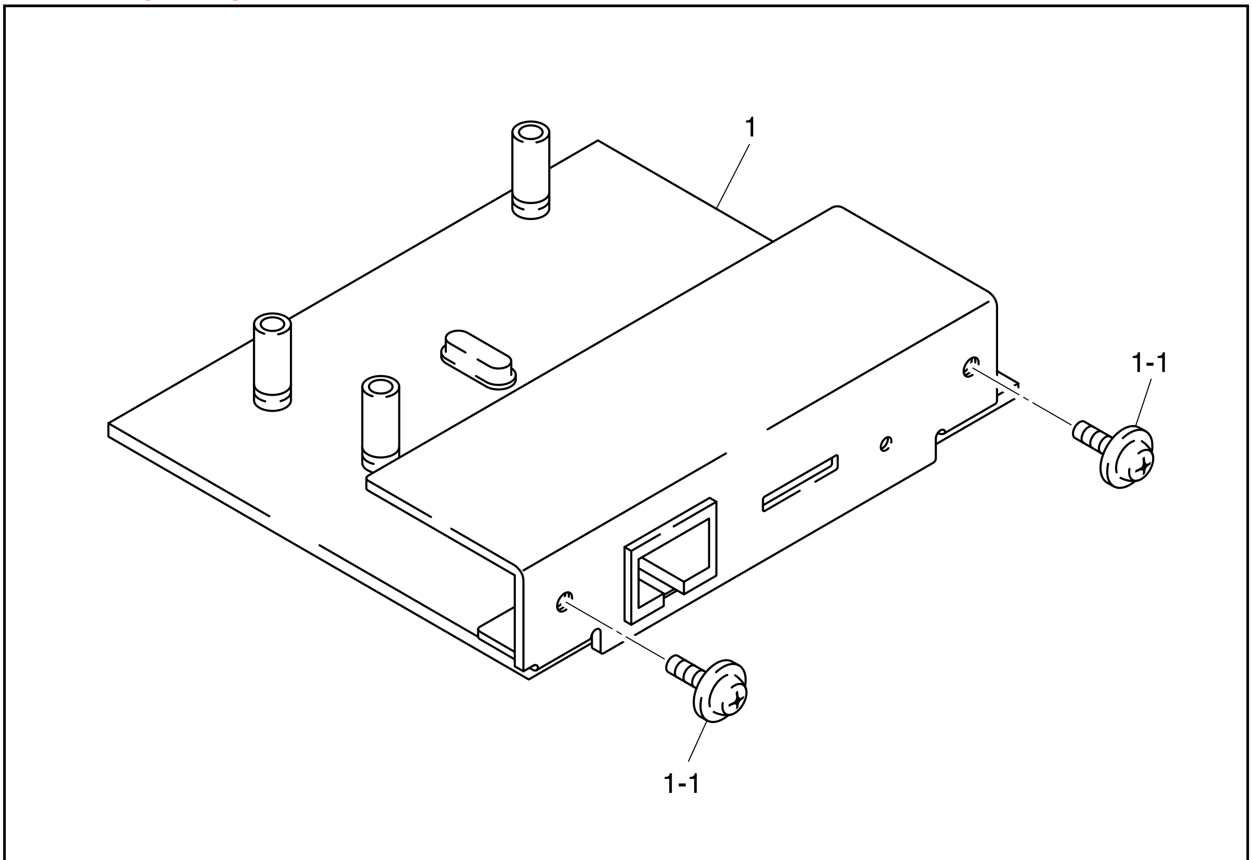
T/I NO. PR99165

13. PACKING MATERIALS



MODEL HL-1030/1240/1250/1270N 84U-Z04/Z01/Z02/Z03-930

14. NETWORK BOARD

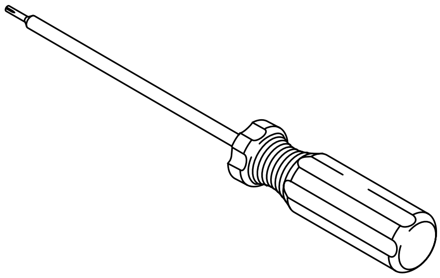


MODEL HL-1270N 84U-Z03-150

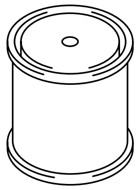
T/I NO. PR99165

15. ADJUSTING TOOL

PRT-402



PRT-001f



TOOL NO.	TOOL NAME	REMARK
PRT-402	TORX SCREW DRIVER	
PRT-001f	MOLYKOTE PG-662	ADD

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T/I NO. PR99165